STAR TRANSIT
TRANSIT DEVELOPMENT PLAN:
FISCAL YEARS 2010 – 2015

Prepared for:

STAR TRANSIT

Prepared by:

PBS&J®

Under contract to:

DRPT
Virginia Department of Rail and Public Transportation
The Smartest Distance Between Two Points

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Contents

Appendices

Currently defined as a service that is provided in a rural portion of the Commonwealth, STAR Transit is not required to prepare and submit its own separate Title VI report or the associated FTA Quadrennial Review; therefore, Appendix A and Appendix B are not included as part of this document.

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1.0 STAR TRANSIT SYSTEM OVERVIEW

This chapter presents general information regarding the STAR (Shore Transit and Rideshare) Transit System.

1.1 History

STAR Transit, the public transportation program of the Accomack-Northampton Transportation District Commission (A-NTDC), exists to provide “safe, reliable, and cost-efficient general public transportation services to the residents of the Eastern Shore."

In 1995, the A-NTDC applied for a $150,000 grant for the establishment of a public transportation system for the Eastern Shore counties (Accomack and Northampton) of Virginia. In 1996, the Virginia Department of Rail and Public Transportation (DRPT) approved the grant. A transit manager was hired, busses were ordered, an office (a storefront in Onancock) was rented, and STAR Transit began operations in October 1996.

Transit service officially began on October 7, 1996 with the Red Route's first run north from its southern terminus at Cape Charles in Northampton County and the Blue Route’s first run south from its northern terminus in the Town of Chincoteague in Accomack County, with the two routes meeting at the Four Corners Shopping Plaza in Onley (Accomack County). Both of these routes have been extended and continue to run today with the same basic service frequency and alignment as when they were first operated.

The Yellow Route was added on March 17, 1997 with the intention that it would travel north from Cape Charles to link with all major employers on the Eastern Shore along the US Route 13 corridor. The Yellow Route is still running today, although its route is now only within Northampton County between the communities of Capeville and Exmore. The Yellow Route was followed by the Green Route that travels back and forth between the seaside and bayside portions of the Eastern Shore in Accomack County from the community of Painter to the community of Onancock. The Green Route service was subsequently converted from a fixed-route operation to what is now a demand-response route servicing the area between the communities of Gargatha and Painter.

The Chesapeake Bay Connector route also began service in 1997. It was proposed to transport workers from the Cape Charles community across the Chesapeake Bay Bridge Tunnel to the Hampton Roads area. This route was terminated because it was not being utilized in the manner anticipated and was viewed as only a shopping route.

The next expansion came in 1998 with the establishment of the Orange Route to provide deviated fixed-route public transportation service between the communities of Saxis and Sanford in the northern portion of Accomack County. This route eventually failed from lack of ridership.

The Purple Route was added in April of 2000. This route is the opposite of the Red Route in that the Purple Route bus during any given time period operates in the opposite direction of the Red Route bus. The alignment of the Purple Route is the same as that of the Red Route.

The Silver Express, an experimental route connecting with Worcester County Ride at the Maryland line to give Virginia residents the opportunity to go to Pocomoke, was initiated in 2002. The route was discontinued due to lack of use. Comments from STAR Transit riders suggest that they were concerned about not being assured of regular connection between the two separate connecting local bus routes operating just in Virginia and Maryland.

The latest service expansion, the Ruby Express, was initiated in 2007. The Ruby Express was a demand-response route running between the community of Machipongo in Northampton County and the community of Painter in Accomack County to serve those residents located more than ¾ of a mile on either side of the Route 13 corridor served by the Red and Purple routes. The Ruby Express service was suspended in 2008 due to the high fuel costs being experienced at that time. Comments by STAR Transit staff indicate that average monthly ridership of this service was on the order of 250-300 passengers per month or about 10-15 passengers per day.

The Blue, Red, Green, Yellow, and Purple Routes are still in service. In 1998, STAR moved from its Onancock storefront to a rented office in Parksley. This location served as the base of transit operations until February 2009 when STAR moved into their own newly constructed administrative and operational building in Tasley.

1.2 Governance

STAR Transit is overseen by a six member Board of Directors who are appointed by the Board of Supervisors for Accomack and Northampton Counties (3 appointees each). Each board member serves at the discretion of the appointing County, with no set term-length. The transit manager typically reports to the Board on a bi-monthly basis (every other month), with the meeting typically held the first Tuesday of every second month at 5:30PM. These meetings are held either at the Chamber of Commerce in Melfa or at the STAR Transit office in Tasley.

The current board members are presented in **Table 1-1**.

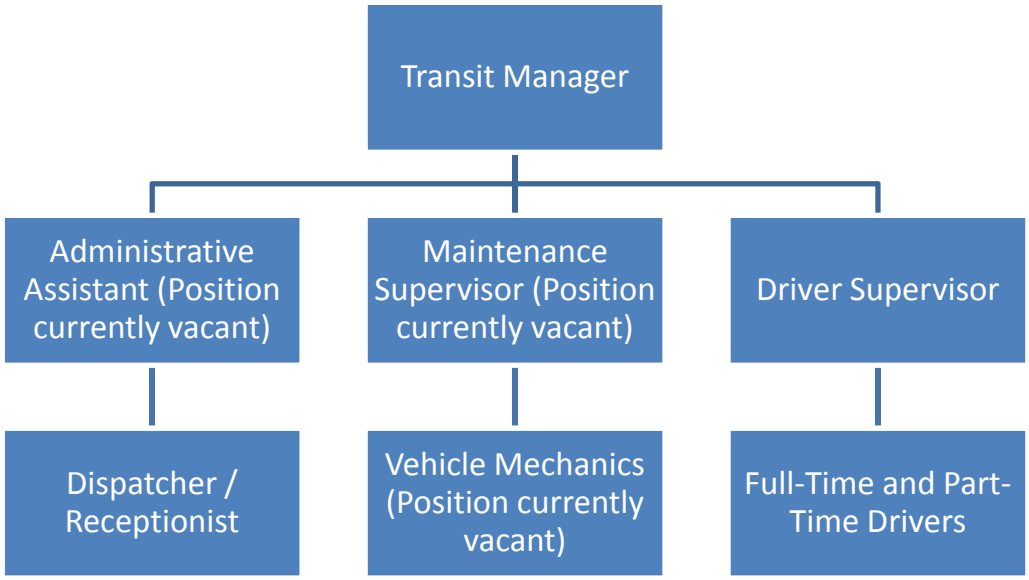
Table 1-1: STAR Transit Board of Directors

Board Member	Appointing County
Steve Malette	Accomack County
E. Phillip McCaleb	Accomack County
Ron Wolffe	Accomack County
Richard Tankard	Northampton County
Laurence Trala	Northampton County
Jeffrey Walker	Northampton County

1.3 Organizational Structure

The day-to-day operation of the system is administered by Ms. Mary Ardolino - CCTM (Certified Community Transit Manager), the transit manager. Ms. Ardolino was hired as transit manager in 2000 following her earlier service as a driver and supervisor with the system since its initiation. In addition to Ms. Ardolino, STAR Transit has 11 employees (6 full-time, 5 part-time). An organization chart for the STAR Transit System is presented in **Figure 1-1**.

Figure 1-1: STAR Transit Organization Chart



The current number of staff are planned to be expanded to add mechanics to perform maintenance and upkeep of the transit fleet in coming years.

The STAR Transit System has no contracted services or union contracts. Numerous partnership agreements are in place to provide service.

1.4 Transit Services Provided and Areas Served

The STAR Transit System provides bus service via a combination of deviated fixed-route and demand-response routes. The system runs four deviated fixed routes (Red, Blue, Yellow, and Purple) and one demand-response route (Green). A summary of each route's basic operation is provided below and in **Table 1-2**. Maps of the routes are also presented in **Figures 1-2 through 1-5**.

Each route requires the use of one (1) bus per day.
Red Line: This is a deviated fixed route running round trip from the Town of Cape Charles to the Four Corners Plaza in Olney along the US Route 13 corridor. The route has stops in the communities of Cape Charles, Bayview, Cheriton, Eastville, Marchipongo, Nassawadox, Exmore, Belle Haven, Painter, Keller, Melfa, and Olney. (See **Figure 1-2**)

Blue Line: This is a deviated fixed route running round trip service from Olney to the Town of Chincoteague along the US Route 13, Virginia Route 176/316/187, and Virginia Route 175 corridors. The route has stops in the communities of Olney, Onancock, Tasley, Accomac, Parksley, Bloxom, Nelsonia, Mappsville, Temperanceville, Saxis, Withams, Oak Hall, Wattsville, and Chincoteague. (See **Figure 1-3**)

Yellow Line: This is a deviated fixed route running round trip from Cape Charles to Exmore along the US Route 13 corridor. The route has stops in the communities of Cape Charles, Cheapside, Townsend, Capeville, Seaview, Cheriton, Eastville, Birdsnest, Weirwood, Nassawadox, Hare Valley, New Road, and Exmore. (See **Figure 1-4**)

Purple Line: This is a deviated fixed route running round trip from Cape Charles to Onancock along the US Route 13 corridor. With the exception of the stops in Onancock, the route is the same as the Red Route. (See **Figure 1-5)**

Green Line: This is a demand-response route servicing the area between Gargatha and Painter.

Applications are available to those who require deviated fixed-route services. With an approved ADA application, STAR Transit will deviate up to 1.5 miles from the closest fixed-route stop. There are eighty stops within the system. Some of these stops are "call-in" only, meaning that the bus only goes there if STAR Transit receives a call requesting a pick-up at those particular stops.

Table 1-2: Summary of STAR Transit Operation

Route Name	Days of Operations	Hours of Operation	Service Frequency
Red Route	Monday through Friday	6:30 AM to 5:52 PM	**Northbound** 1st run starts at 6:30 and returns at 9:30 2nd run starts at 10:50 and returns at 1:35 3rd run starts at 3:00 and returns at 5:50
			Southbound 1st run starts at 8:15 and returns at 12:00 2nd run starts at 12:20 and returns at 4:10 3rd run starts at 4:40 and has no return
Blue Route	Monday through Friday	6:05 AM to 6:00 PM	**Northbound** 1st run starts at 8:10 and returns at 11:30 2nd run starts at 12:25 and returns at 4:15 3rd run starts at 4:40 and has no return
			Southbound 1st run starts at 6:05 and returns at 9:30 2nd run starts at 10:00 and returns at 1:45 3rd run starts at 2:45 and returns at 6:00
Yellow Route	Monday through Friday	5:55 AM to 6:11 PM	**Northbound** 1st run starts at 5:55 and returns at 10:00 2nd run starts at 10:10 and returns at 2:00 3rd run starts at 2:25 and returns at 6:10
			Southbound 1st run starts at 8:30 and returns at 11:40 2nd run starts at 12:35 and returns at 3:50 3rd run starts at 4:55 and has no return
Purple Route	Monday through Friday	6:45 AM to 5:20 PM	**Northbound** 1st run starts at 8:10 and returns at 11:40 2nd run starts at 12:15 and returns at 3:45 3rd run starts at 4:10 and has no return
			Southbound 1st run starts at 6:45 and returns at 9:20 2nd run starts at 10:35 and returns at 1:25 3rd run starts at 2:40 and returns at 5:20
Green Route	Monday through Friday	7:30 AM to 4:30 PM	Demand Response - Call in Service

Figure 1-2: STAR Transit Red Route

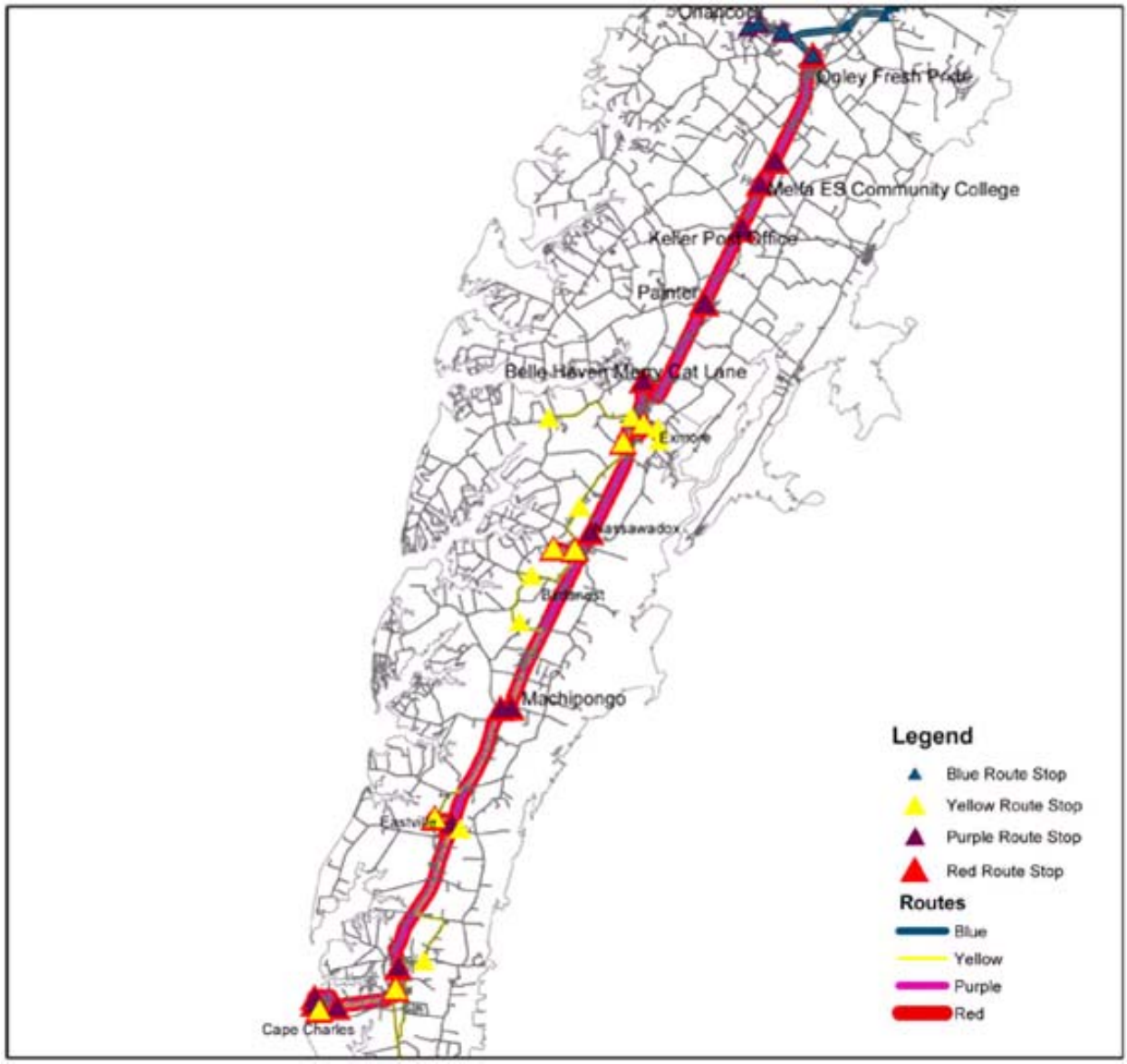


Figure 1-3: STAR Transit Blue Route

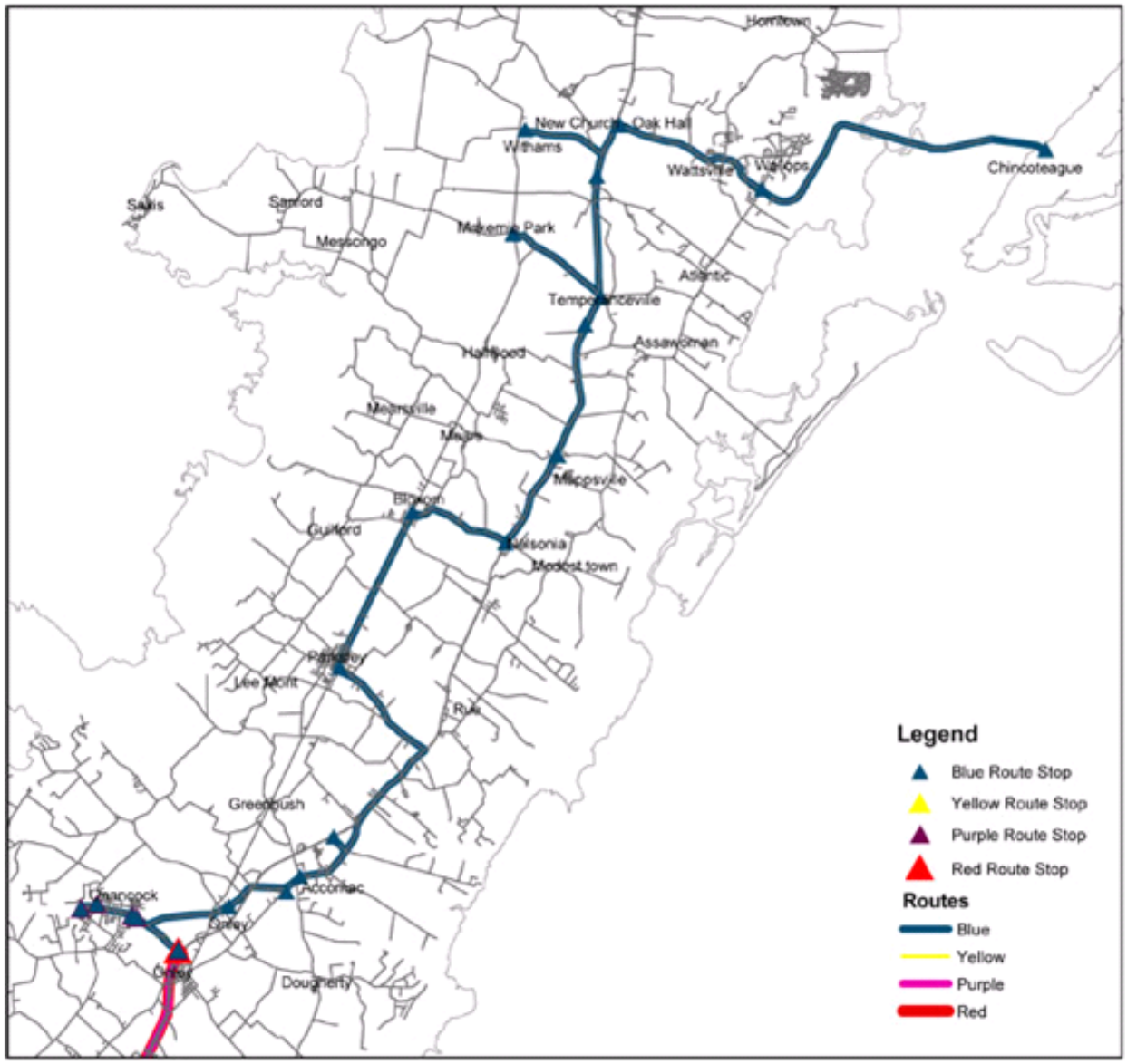


Figure 1-4: STAR Transit Yellow Route

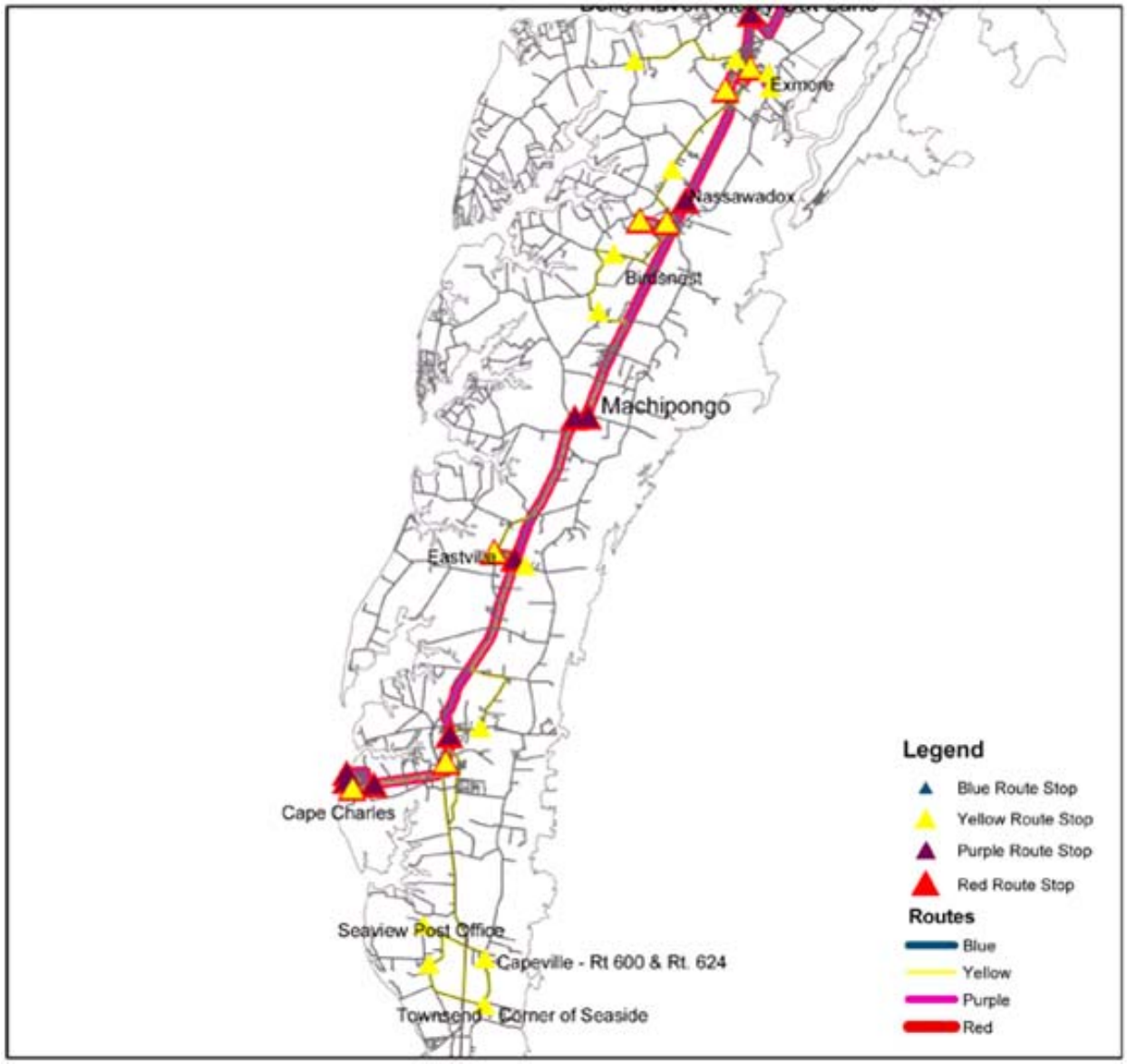
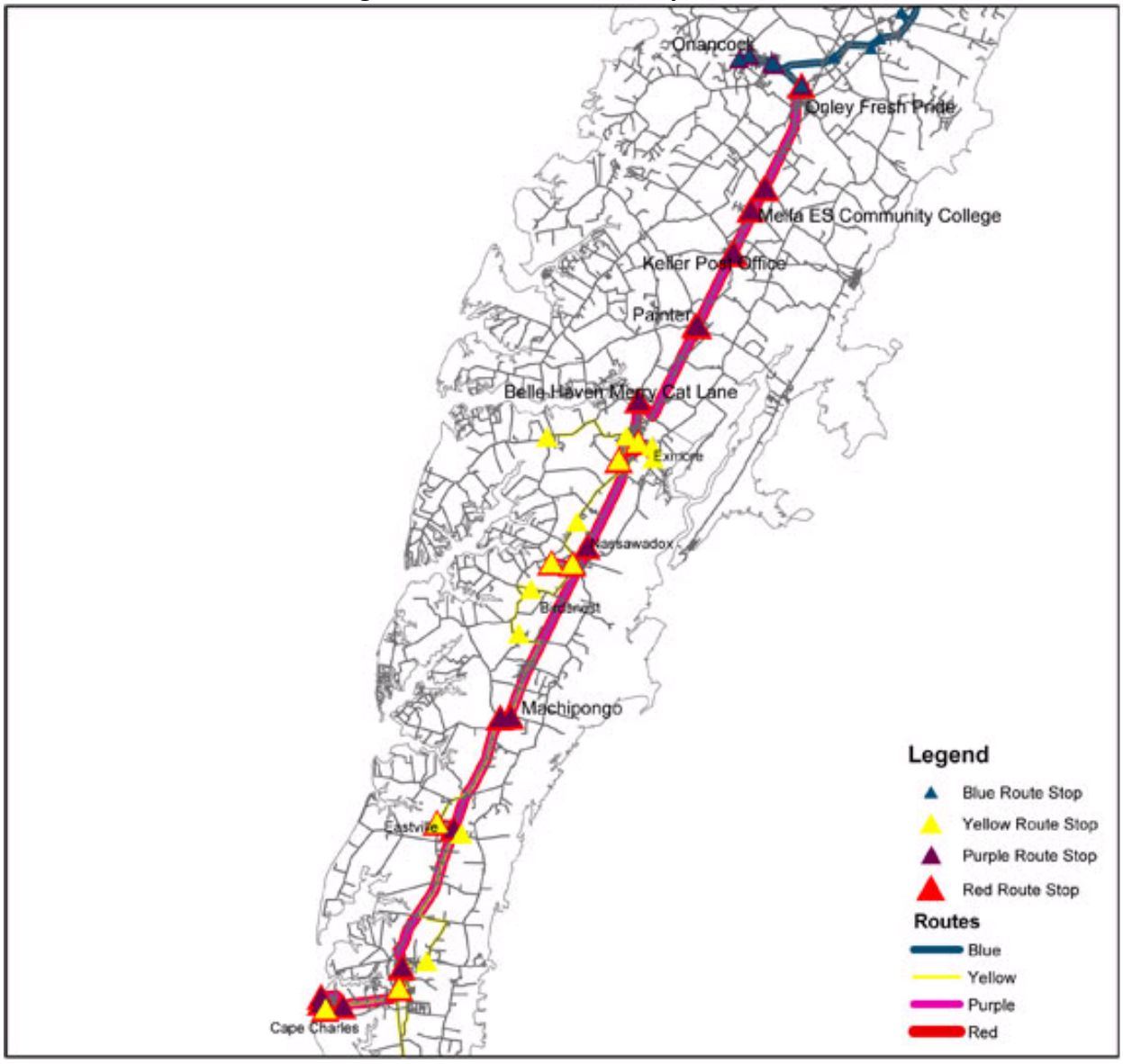


Figure 1-5: STAR Transit Purple Route



1.5 Fare Structure

Fixed-route (Red, Blue, Yellow and Purple Routes) bus fares are $1.50 (regular rate) and $1.00 (reduced rate). Demand-response (Green Route) bus fares are $3.00 (regular rate) and $2.00 (reduced rate). Fares are paid in cash upon entering the bus. No free riders are allowed. Reduced fares are offered for persons age 62 and over and any qualified person with a disability, with an approved application. These fare levels have been in place for at least the last five years.

1.6 Fleet

The STAR Transit vehicle fleet is composed of seven (7) transport vehicles and two (2) administrative/service vehicles. The five (5) newest passenger vehicles are used for daily transportation, with the two (2) older vehicles being used as spare transports. There have been a few occasions when STAR Transit had to borrow several vehicles from Virginia Regional Transit. A summary of the current vehicle fleet is presented in **Table 1-3** and details are provided in **Appendix C**. With the exception of the system minivan and the pick-up truck, all vehicles are ADA accessible/wheelchair lift equipped.

Table 1-3: STAR Transit Existing Vehicle Inventory

Number of Vehicles	Vehicle Type	Seating Capacity	Year of Manufacture
1	Minivan	7	2004
1	Pickup truck	2	2007
1	Cutaway Bus	23	2005
1	Cutaway Bus	18	2005
1	Cutaway Bus	14	2006
2	Cutaway Bus	15	2006
2	Cutaway Bus	15	2008

The useful effective life of the fleet vehicles is estimated at either four years of service or 100,000 miles of revenue operations, whichever comes first. Currently, the entire STAR Transit vehicle fleet operates a total of 345,000 vehicle-miles per year with each typical vehicle traveling on average between 36,000 and 50,000 miles per year. At this level of use, all of the current vehicles in the fleet would need to be replaced on a 2 - 3 year cycle.

The buses have external bicycle racks, riders need to request permission from the bus driver before mounting their bike onto the racks. All of STAR Transit's regular buses are equipped with wheelchair lifts.

1.7 Existing Facilities

STAR Transit has recently completed construction on a new headquarters, operations, and maintenance building. The construction of this approximately 4,000 square foot facility was completed in January 2009 and the transfer from the old administration building was completed in February 2009. The new building provides all administrative, maintenance, storage, staging, and parking needs for the transit system. The building has been designed to meet all Americans with Disabilities Act (ADA) requirements.

Vehicle fueling is completed off site from the headquarters building. Fueling is completed in partnership with Accomack County at their fueling station in Melfa.

STAR Transit does not own any bus stations, transit centers, passenger waiting shelters, or right-of-way. The system does own and has installed a number of bus stop signs at the majority of the time points noted on the route schedules. In addition, there are no railroad or bike facilities under the control of STAR Transit.

1.8 Transit Security Program

STAR Transit has implemented several plans and programs to facilitate safety for the transit operators and passengers as well as the public at large. A System Security and Emergency Preparedness Plan has not been implemented for the system. Each transit vehicle is equipped with a two-way radio for general and emergency communication with the dispatch operator. Currently, there are no GPS-equipped busses or any busses with video cameras, although these features are planned to be added to the transit fleet as it is updated/expanded in future years.

Car seats for use by small children are provided in each bus and seat belts are required for all passengers. All wheelchairs are required to be secured in each vehicle at the designated location.

A fare inspection program has been developed and implemented. At the present time, none of the STAR Transit vehicles have secure fare boxes. Cash fares, tickets, and passes are placed in a zippered pouch issued to each driver. Each pouch is returned to the system manager at the end of each operating day for accounting and depositing of funds in the local bank that services the system's financial needs.

1.9 Public Outreach

The transit manager (Ms. Mary Ardolino) makes numerous presentations about the STAR Transit System throughout the year to local service and community groups and public agencies. STAR publishes information and recognizes its partners in local newspapers. Finally, numerous newspaper and television stories about the transit system have been published/broadcast within the service area.

2.0 GOALS, OBJECTIVES, AND STANDARDS

STAR Transit is the principal public transportation provider for the Eastern Shore of Virginia. STAR Transit is operated under the auspices of the Accomack-Northampton Transportation District Commission (ANTDC).

2.1 STAR Vision and Mission

The STAR Transit web site describes the agency's fundamental mission as follows:

> "*STAR Transit, the public transportation program of the Accomack-Northampton Transportation District Commission, exists to provide safe, reliable, and cost-efficient general public transportation services to the residents of the Eastern Shore*."[1]

In support of this basis mission statement, STAR Transit has developed a series of generalized operating policies and procedures that are reviewed and acknowledged by each of the system's employees. These general operating policies and procedures are maintained at the administrative office for STAR Transit.

The two Virginia Eastern Shore counties within which STAR Transit operates encompass the geographic area of the Accomack-Northampton Planning District Commission. Established in 1970, the Accomack-Northampton Planning District Commission (A-NPDC) is the regional planning agency for the Eastern Shore of Virginia. The agency provides planning and housing services for Accomack and Northampton Counties, the Town of Chincoteague, and the other incorporated towns in the region.

As is the case in most of the Commonwealth of Virginia, each of the local jurisdictions develops its own comprehensive plan. Most recently, the Accomack County Board of Supervisors adopted an updated Comprehensive Plan in May 2008 to replace the previous 1997 version of the plan. Among the various elements of the updated Comprehensive Plan, Chapter 5 – Goals, Objectives, Policies, and Recommended Actions – presents some general guidance on the role of public transportation in the region. One of the new plan's three basic goals is the following:

> "Have safe, clean, convenient, and efficient community services and facilities for transportation, recreational opportunities, government services, and disposal of wastes."[2]

[1] http://www.mystartransit.com/about.shtml
[2] Chapter Five: Goals, Objectives and Policies; The Accomack County Comprehensive Plan; Adopted May 14, 2008; Page 5-2.

In addition, **Objective 10 – Transportation Plan** within Chapter 5 of the Comprehensive Plan calls for "*Achieve a safe and efficient transportation system*," while ***Policy 10-3*** states "*Support the development of an effective public transportation network*." [3]

An updated Comprehensive Plan is presently being developed for Northampton County. The final version of this document is expected to contain similar general goals, objectives, and policies related to transportation in general, and public transportation in particular.

The Town of Chincoteague in northern Accomack County has also recently (March 2008) adopted a new community Comprehensive Plan. Chapter 2 – Goals & Objectives of the *Chincoteague Comprehensive Plan* describes the community's "Transportation Goal" as follows:

> "Provide for the safe and efficient movement of people and goods."[4]

The associated "Transportation Objectives" are:

1. Provide a safe and comfortable system of pedestrian and bicycle pathways.
2. Minimize elements which clutter the roadway and look unattractive.

While neither the "Transportation Goal" nor the associated "Transportation Objectives" speak directly to the STAR Transit System, they appear to be generally supportive of the concept of moving people and goods in a modal neutral context.

2.2 TDP Goals and Objectives

As part of this TDP work effort, more specific goals, objectives, and standards have been defined to guide STAR Transit operations and activities over the TDP time period. Goals center on specific themes. Objectives have been defined within each goal. Future updates of the Accomack and Northampton Counties Comprehensive Plans and those of the other municipalities in the STAR Transit service area should take into consideration these goals and objectives.

GOAL 1: Provide Reliable Fixed-Route and Demand-Responsive Service that Meets the Transportation Needs for STAR Transit Service Area Residents.

> **Objective 1.1**: Provide transit service connections between residential areas and commercial areas with jobs, education, shopping, and medical services.
>
> This objective is to be accomplished through the following minimum activities:
> - Documenting and recording customer service requests;

[3] Ibid, Page 5-21.
[4] Chincoteague, Virginia Comprehensive Plan; Chapter 2 Goals and Objectives; March 2008; Page 2-1.

- Working on a regular basis with the County Economic Development Coordinators to identify planned new developments that might warrant transit service; and
- Surveying riders at least once every five years to determine rider service needs.

Objective 1.2: Provide easily identifiable stop locations along routes and passenger shelters if warranted.

This objective is to be accomplished through the following minimum activities:

- Establish safe bus stop locations when modifying an existing alignment or implementing new service.
- Work with Town and County Public Works Department and Virginia Department of Transportation (VDOT) staff in providing new or expanding existing sidewalks at stops with high ridership demands.
- Monitor ridership activity at high demand stops to determine if/when passenger shelters are needed.

GOAL 2: Market Existing Transit Services.

Objective 2.1: Actively market transit services as a travel option within Accomack and Northampton Counties.

This objective is to be accomplished through the minimum following minimum activities:

- Maintain "STAR Transit System, Route and Schedule Guide" for users of the transit system;
- Maintain transit information on the STAR Transit web site and those of other town and county governments in the service area;
- Participate in community events to promote public transportation;
- Maintain a mailing list of organizations and social service agencies that represent markets that are likely to ride transit, and provide service information to those organizations and agencies.

Objective 2.2: Explore potential demand to expand cost-effective transit service to areas outside of those presently being serviced.

This objective is to be accomplished through the following minimum activities:

- Initiate exploration meetings with Town and County staff and officials to determine potential transit service needs, likely transit demand, service options, fare structure

requirements that will provide farebox recovery ratios comparable to current STAR Transit services, and potential supplemental funding sources.

GOAL 3: Deliver Fixed-Route and Demand-Responsive Services in a Cost-Effective Manner.

Objective 3.1: Maintain a system-wide farebox recovery ratio (farebox revenues/total operating expenses) that meets or exceeds standards identified in **Section 2.3** of this TDP.

This objective is to be accomplished through the following minimum activities:

- Record and monitor trends in passenger trips by route.
- Record and monitor monthly transit operations expenses and farebox revenues.

Objective 3.2: Hold administrative costs to approximately 20 percent of total operating budget.

This objective is to be accomplished through the following minimum activities:

- Record and monitor monthly transit operations expenses and farebox revenues.

Objective 3.3: Achieve system-wide fixed-route ridership levels that meet or exceed standards identified in **Section 2.3** of this TDP.

This objective is to be accomplished through the following minimum activities:

- Maintain and monitor monthly ridership reports for fixed route and demand-responsive service, with ridership reported on a route segment basis for fixed routes.
- Implement corrective measures if ridership falls below established standards for specific routes for more than two (2) months in a row. Such corrective measures may include: route alignment, service frequency and span of service adjustments, and/or fare adjustments.

GOAL 4: Deliver Fixed-Route and Demand-Responsive Services in a Safe Manner.

Objective 4.1: Ensure that transit service operators maintain an accident rate of less than the standard identified in **Section 2.3** of this TDP.

This objective is to be accomplished through the following minimum activities:

- Maintain a training program for new employees.

- Review established Operating Policies and Procedures at least once a year and update as necessary. Review those policies and procedures as part of all training efforts with new staff. Also review with existing staff at least once every two years.

Objective 4.2: Ensure that an adequate fleet of vehicles is maintained for the fixed-route and demand-responsive services.

This objective is to be accomplished through the following minimum activities:

- Identify the need for replacement vehicles based on industry standards for defined useful life of vehicles. For most buses operated by STAR Transit, the defined useful life is a time period of 4-years or 100,000 revenue miles of operations, whichever comes first.
- Maintain a spare ratio of at least one (1) bus for fixed-route transit services.

GOAL 5: Provide Transit Services That Are Accessible to Citizens.

Objective 5.1: Provide transit services that are accessible to all population groups within the two-county service area.

This objective is to be accomplished through the following minimum activities:

- Comply with the applicable requirements of the Americans with Disabilities Act (ADA);
- Provide the ADA-eligible population with paratransit service that is comparable to service provided by the fixed-route system.

2.3 Service Performance Standards

This TDP work effort has also identified the following service standards that are to be monitored on a monthly basis by STAR Transit administrative staff.

1. **Ridership Service Productivity Measures**

The following system-wide service standards are proposed based on a review of ridership characteristics over the past several months:

Fixed-Route Standard – Monthly system-wide fixed-route ridership should maintain levels equivalent to 0.12 passenger trips per revenue mile.

Demand-Responsive Standard – Monthly base demand-responsive service should maintain ridership levels equivalent to 1.5 passenger trips per revenue-hour with

average ride times not exceeding 50-minutes. Monthly demand-responsive service should maintain ridership levels equivalent to 1.0 passenger trips per revenue-hour with average ride times exceeding 50-minutes.

Corrective measures should be investigated if ridership on STAR Transit's fixed-route system and/or demand-responsive system fall below the levels identified above for three (3) months in a row.

2. Cost Effectiveness Measures

Fixed-Route Standard **-** STAR Transit's farebox recovery ratio (farebox revenues as a percentage of operating expenses) for fixed-route services shall remain at approximately 10 percent. Corrective measures should be investigated if the farebox recovery ratio falls below this standard for a period of three (3) months in a row.

Demand-Responsive Standard – STAR Transit's farebox revenues for demand-responsive service should remain at a farebox recovery ratio of approximately 10 percent. Corrective measures should be investigated if the farebox recovery ratio falls below this standard for a period of three (3) months in a row.

3. Vehicle Maintenance Performance Measures

The following two standards shall be monitored with regards to vehicle maintenance performance:

Bus Preventive Maintenance Inspections – Preventive maintenance shall be conducted on all vehicles in the transit fleet per vehicle manufacturer recommendations.

Revenue Vehicle Failures – STAR Transit should maintain a standard of no more than 0.15 revenue vehicle failures per 1,000 revenue bus-miles of service.

3.0 SERVICE AND SYSTEM EVALUATION

The primary purpose of Chapter 3 of the TDP is to describe the recent performance of the STAR Transit System relative to generally accepted performance standards for the fixed-route/fixed-schedule and demand-response types of transit operations associated with this system. This assessment describes the manner in which STAR Transit is providing public transportation services to the residents of the two-county region (Accomack and Northampton Counties) on the Eastern Shore of Virginia. Each of the following sections discusses one facet of this evaluation process.

3.1 Historical and Existing Service Perspective

STAR Transit initiated their operations in October 1996 and has gradually expanded to serve the needs of Accomack and Northampton Counties. As the system has continued to grow and expand, changes have been regularly observed in virtually all relevant comparative factors, from the number of revenue-miles and revenue-hours operated each year to the total system operating costs and the number of passengers transported. With many of the service changes having been observed over just the past several years, it is difficult to apply a traditional five year service history to the system.

The most comprehensive assembly of statewide system performance data for public transit systems in Virginia was published in 2007.[5] Although the title of this statewide transit performance report indicates that it presents data for the period FY2002 – FY2006, this information is typically only provided for the larger and better established urban bus and rail systems in the Commonwealth. In the case of STAR Transit and virtually all of the other small municipal and rural public transit systems in the state, only data for FY2006 is provided in this report. As a result, the historical evaluation of STAR Transit operations associated with this TDP has only been able to consider the three year period from FY2006 through FY2008. **Table 3-1** illustrates several operating statistics in each of these three years.

[5] Virginia Transit Performance Report (FY2002-FY2006); Virginia Department of Rail and Public Transportation; Richmond, Virginia; 2007.

Table 3-1: Historical Operating Statistics for STAR Transit, FY2006-2008

Operating Statistics	2006	2007	2008
Annual Passengers	37,025	38,354	40,999
Annual Farebox Revenue	$48,690	$52,986	$53,925
Annual Operating Costs	$391,620	$448,431	$492,546
Annual Revenue Miles	315,959	342,765	341,564
Annual Revenue Hours	14,125	15,245	14,250
Farebox Recovery Ratio	12.4%	11.8%	10.9%
Passengers per Revenue Mile	0.12	0.11	0.12
Passengers per Revenue Hour	2.62	2.52	2.88
Cost per Passenger	$10.58	$11.69	$12.01
Cost per Revenue Mile	$1.24	$1.31	$1.44
Cost per Revenue Hour	$27.73	$29.41	$34.56

Source: Virginia Department of Rail and Public Transportation

As shown in **Table 3-1 and Figure 3-1**, the number of annual passengers increased from 37,025 persons in FY2006 to 40,999 in FY2008 with the annual ridership in FY2007 being between these two values at 38,354 persons. This net increase in reported system ridership of 3,974 persons over a period of two years represents a 10.7 percent increase over this time period. Much of this reported ridership increase appears to be attributable to the modest continuing expansion in the amount of transit service being provided by STAR Transit, from about 315,959 revenue miles in FY2006 to about 341,564 revenue miles in FY2008 (an increase of about 8.1 percent in revenue miles) and from 14,125 revenue hours in FY2006 to 14,250 revenue hours in FY2008 (about a 0.9 percent increase in annual revenue hours).

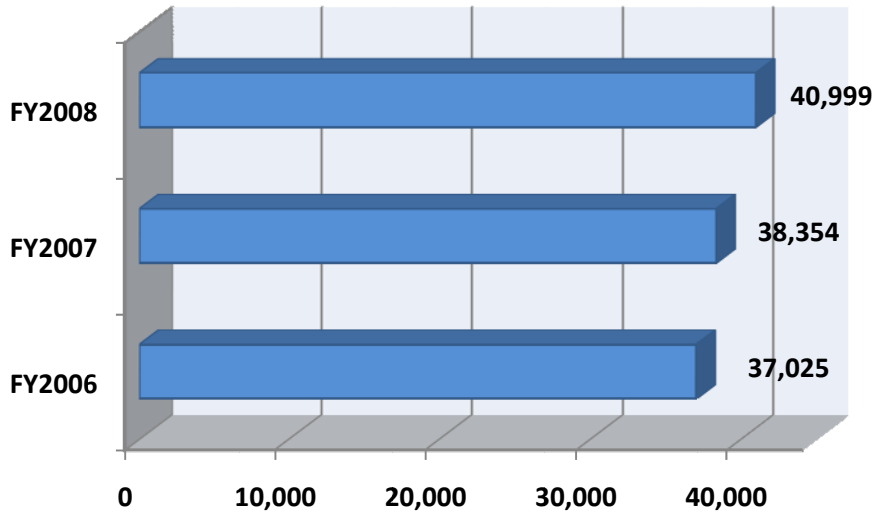


Figure 3-1: Annual Passengers for STAR Transit, FY2006-2008

It should be noted that the system revenue miles and revenue hours of operation in FY2007 were somewhat higher (0.4 percent higher revenue miles and 7.0 percent higher revenue hours) than those provided in FY2008. The modest reduction in service provided in FY2008 as compared to that provided in FY2007 has been attributed by the transit system manager as a

direct result of the significant increase in fuel costs observed during FY2008 as opposed to that seen during FY2007 (which resulted in the elimination of the Ruby Express). With the STAR Transit vehicles all being gasoline powered, the nearly doubling of fuel costs during FY2008 imposed a major financial burden on the agency. With fixed values for local and state operating assistance in FY2008, a modest reduction in the amount of service being provided had to be imposed in order to maintain a balance between system operating costs and operating assistance.

As shown in **Figure 3-2**, the annual system operating costs experienced a significant increase during this period of time, from $391,620 in FY2006 to $448,431 in FY2007 and to $492,546 in FY2008. The rate of increase from year to year was about 14.5 percent between FY2006 and FY2007 and about 9.8 percent between FY2007 and FY2008. The total increase in system operating costs over the period from FY2006 to FY2008 was about 25.8 percent.

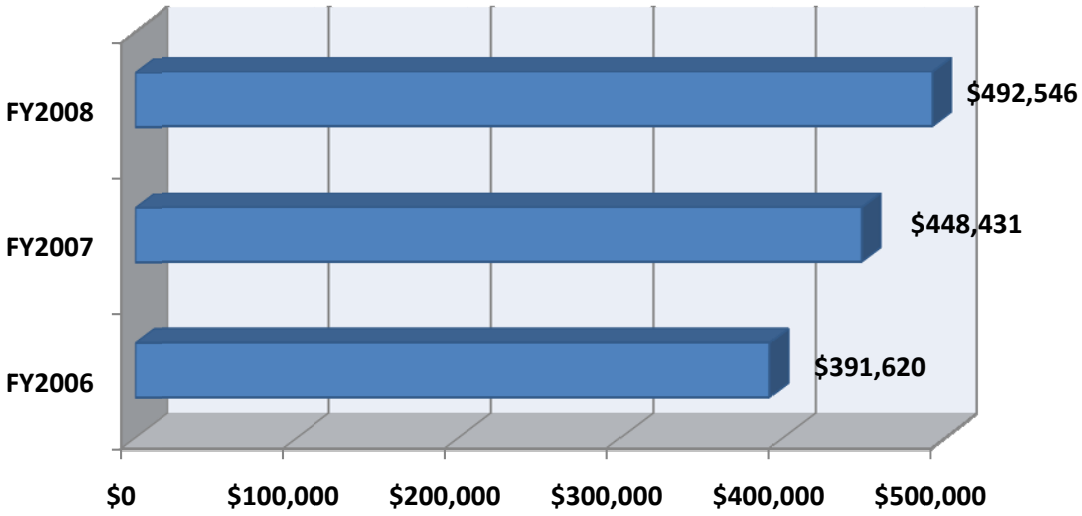


Figure 3-2: Annual Operating Costs for STAR Transit, FY2006-2008

When these total annual values are expressed in terms of unit factors, somewhat different conclusions can be drawn. For example, the average passengers per revenue mile value of 0.12 observed in FY2006 declined slightly to a value of 0.11 in FY2007 but rebounded to a value of 0.12 passengers per revenue mile in FY2008. Similarly, the average passengers per revenue hour value of 2.62 observed in FY2006 declined to a value of 2.52 in FY2007 but then rebounded to a value of 2.88 in FY2008. The ability of the STAR Transit management team to maintain the passengers per revenue mile and to increase the passengers per revenue hour statistics while holding the amount of service relatively constant is a commendable action.

As shown in **Table 3-1 and Figure 3-3**, the average cost per passenger increased from $10.58 per passenger in FY2006 to $11.69 per passenger in FY2007 and to $12.01 per passenger in FY2008, for a change over this period of time of about 13.6 percent. Much of this increase appears to be attributable to the observed increase in system operating costs, with much of the

increase due to significantly higher fuel costs experienced during FY2008 for the gasoline powered vehicle fleet operated by STAR Transit.

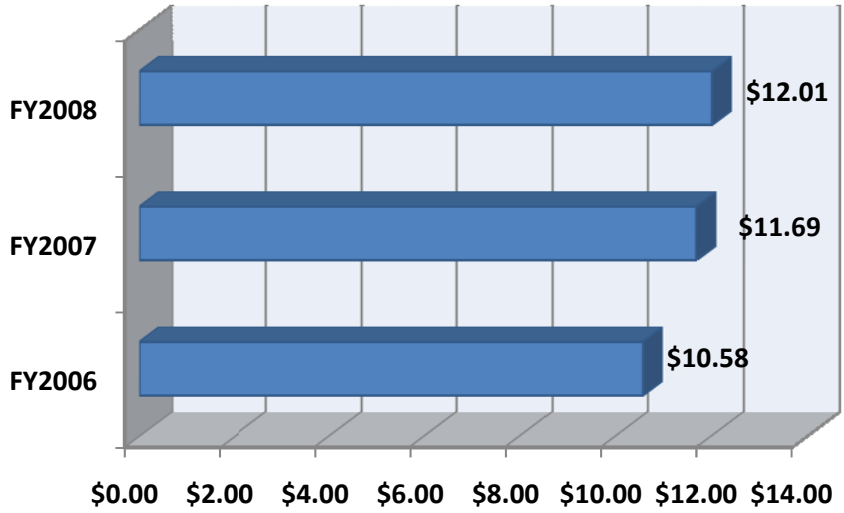


Figure 3-3: Cost Per Passenger for STAR Transit, FY2006-2008

All of these cost and ridership response factors will need to be regularly monitored and reported by the system's management in order to identify trends of both a positive and a negative nature.

As of today, STAR Transit has four (4) deviated fixed routes and one (1) demand-response service in operation. For each route, STAR Transit has recorded the annual ridership from the year the route started operation. The following is the summary table of the annual ridership for each route.

Table 3-2: Annual Ridership of STAR Transit System

YEAR	ROUTES									
	Red	**Blue**	**Yellow**	**Green**	**Bay**	**Orange**	**Purple**	**Silver**	**Ruby**	**Total**
1996	1,340	359	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**1,699**
1997	11,282	3,483	4,097	N/A	N/A	N/A	N/A	N/A	N/A	**18,862**
1998	13,327	5,633	6,123	1,895	1,529	N/A	N/A	N/A	N/A	**28,507**
1999	14,167	6,971	7,073	2,690	6,560	1,428	N/A	N/A	N/A	**38,889**
2000	12,082	5,684	5,504	3,150	2,027	794	4,446	N/A	N/A	**33,687**
2001	12,007	7,215	7,916	6,581	N/A	N/A	8,937	N/A	N/A	**42,656**
2002	13,249	7,557	8,673	8,165	N/A	N/A	8,841	1,205	N/A	**47,690**
2003	10,783	4,988	7,935	7,932	N/A	N/A	9,060	N/A	N/A	**40,698**
2004	9,478	4,798	7,589	8,649	N/A	N/A	7,829	N/A	N/A	**38,343**
2005	9,383	5,561	6,830	8,116	N/A	N/A	8,714	N/A	N/A	**38,604**
2006	9,468	4,539	7,359	6,078	N/A	N/A	8,714	N/A	N/A	**36,158**
2007	8,982	5,088	7,894	6,927	N/A	N/A	8,911	N/A	2,586	**40,388**
2008	8,752	5,653	7,893	5,976	N/A	N/A	10,336	N/A	1,028	**39,638**
2009	2,366	1,274	1,740	1,418	N/A	N/A	2,128	N/A	N/A	**8,926**

Source: Ridership reports provided by STAR Transit. Passenger volumes for the years 1997 – 2008 are 12-month duration Federal fiscal year's data; data for 2009 is for the period of October 2008 through January 2009 (4 months inclusive).

Peak ridership for the system occurred in 2002 with almost 47,700 passengers. Much of the subsequent observed decline in ridership can be attributed to the closing of a K-Mart store, a major stop on the bus lines. Since that time, ridership has remained relatively steady between 38,000 and 40,000 per year. This annual ridership stability is also indicative of the relatively flat population growth rates observed in the two counties over this time period.

The greatest ridership increase is found on the Purple Route, which has increased 15.7% since it was initiated in 2000. The greatest decrease has been in the Red Route, which has lost 38.3% of its ridership since its high point in 1999. A large portion of these route specific ridership variations are attributed to passengers using different routes that serve the same general destination areas.

3.2 Peer System Review

The preparation of a transit development plan includes the comparison of the performance characteristics of the subject system with those systems of a similar size. At the national level, all public transit agencies are required to report such information to the Federal Transit Administration (FTA) for inclusion in the National Transit Database (NTD) unless they are granted a reporting exemption. Since its original establishment, the NTD has developed uniform standards and procedures for the reporting of this information on an annual basis. With all transit agencies having to report the same information to NTD in the same manner, this database provides a consistent set of data that can be used for a peer group type of analysis.

While the NTD was originally developed to allow for the consistent compilation of comparable statistics for transit systems operating in metropolitan areas of 50,000 population or greater, it was subsequently expanded to include all urban and rural public transportation operations across the country. Particularly in the case of smaller urban and rural transit systems, the state departments of transportation compile the individually submitted annual operating statistics and provide this information to NTD. In the Commonwealth of Virginia, this data compilation and submittal function is provided by the Department of Rail and Public Transportation (DRPT).

It is important to note that while all public transit systems report the same information in the same manner, each system has a unique set of administrative, governmental, operating, and financial characteristics. Thus, while several systems may appear to be similar to one another through a comparison of basic operating statistics, they are not identical in all respects to their designated "peers". The peer group comparison for STAR Transit was limited to the use of available information on other similar rural fixed-route public transit systems currently operating in the Commonwealth of Virginia.

While this geographically-oriented process of peer group selection may have resulted in a wider than desired range of values for some system characteristics such as service area population or number of vehicles operated during peak periods, it did ensure that all of the peer systems were known quantities to DRPT staff and had been in operation for a reasonable period of time. Using this process, the following group of six candidate peer transit systems was identified:

- Four County Transit
- RADAR Covington FR/FS Operations
- District 3 Transit System
- FRED – Caroline County
- FRED – King George County
- VRT – Shenandoah Blue Ridge

Most of these systems are providing traditional fixed-route or deviated fixed-route transit service to single or multi-county areas in generally rural locations. They generally have large

service areas and high numbers of annual revenue hours and operating mileage in comparison to ridership.

Table 3-3 summarizes the performance indicators for each of these six selected peer transit agencies and STAR Transit.

Table 3-3: STAR Transit – Peer Group Comparison Summary

	Peer Group Transit Systems (Rural Fixed Route / Fixed Schedule Service)								
Performance Indicators	**Four County Transit**	**RADAR Covington (FR/FS Opns)**	**District 3 Transit System**	**FRED (Caroline County)**	**FRED (King George County)**	**VRT - Shenandoah Blue Ridge**	**Average**	**STAR Transit System**	**Pct. Diff. from Peer Group Average**
Population	118,200	19,300	165,800	22,100	16,800	220,000	93,700	51,400	-45.1%
Total System Operating Cost	$1,629,633	$134,628	$1,514,423	$179,313	$292,614	$278,820	$671,572	$492,546	-26.7%
Total Vehicle Revenue Miles	1,154,672	43,896	598,932	128,232	166,358	137,367	371,576	341,564	-8.1%
Total Vehicle Revenue Hours	56,874	2,484	47,543	3,794	5,796	6,434	20,488	14,250	-30.4%
Total Unlinked Passenger Trips	184,140	13,249	210,507	6,189	15,867	30,851	76,801	40,999	-46.6%
Passengers per Revenue Mile	0.16	0.30	0.35	0.05	0.10	0.22	0.21	0.12	-41.9%
Passengers per Revenue Hour	3.24	5.33	4.43	1.63	2.74	4.79	3.75	2.88	-23.2%
Cost per Trip	$8.85	$10.16	$7.19	$28.97	$18.44	$9.04	$8.74	$12.01	37.4%
Cost per Vehicle Revenue Mile	$1.41	$3.07	$2.53	$1.40	$1.76	$2.03	$1.81	$1.44	-20.2%
Cost per Vehicle Revenue Hour	$28.65	$54.20	$31.85	$47.26	$50.49	$43.34	$32.78	$34.56	5.4%

Note: All data for Fiscal Year 2008 ending September 30, 2008 unless otherwise noted

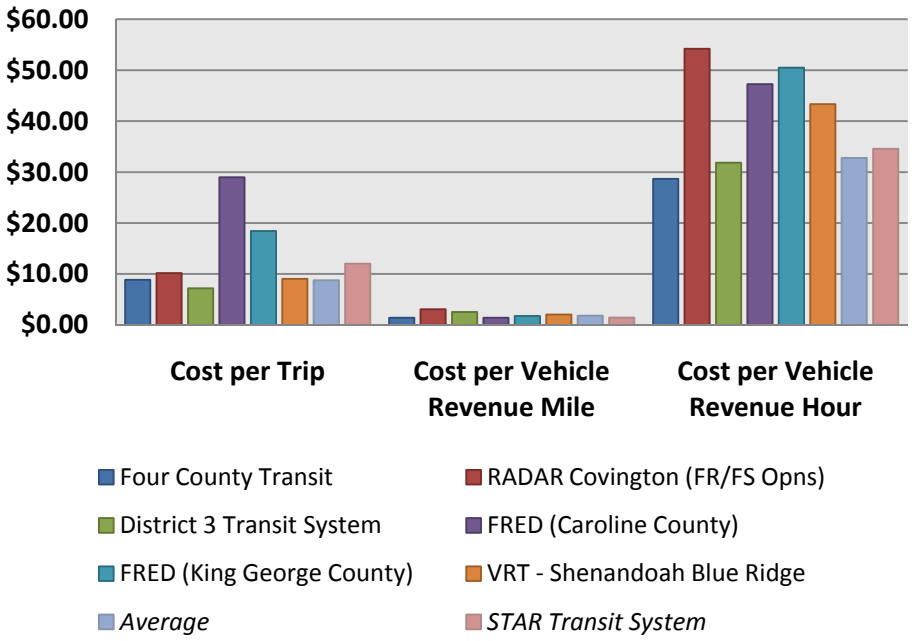


Figure 3-4: STAR Transit – Peer Group Comparison Summary

As shown in **Table 3-3** and **Figure 3-4**, the total system operating cost of STAR Transit System ($492,546) is about 27% less than the average value for this factor of $671,572 experienced by the six peer systems. The STAR system's annual operating costs tend to fall in the middle of the upper and lower values reported by the peer systems. The much larger Four County Transit and District 3 Transit systems reported annual operating costs about three times those of STAR Transit, while the reported annual operating costs for the smaller, more limited rural fixed-route operations provided by RADAR Covington, FRED Caroline County, Fred King George County, and VRT – Shenandoah Blue Ridge were all about half those experienced by STAR Transit.

The STAR system has slightly lower numbers in total vehicle revenue miles (about 8% less than the average of the peer systems); and much lower total vehicle revenue hours (about 30% less than the peer average). These statistics indicate that the STAR system provides a somewhat more limited amount of service than its peer systems.

The number of total unlinked passenger trips transported on the STAR Transit System during FY2008 of 40,999 is much lower (about 47% less) than the average number of passengers transported by the six peer systems of 76,801. Once again, the annual ridership on the STAR Transit system falls in the middle of the range of annual ridership and is about 20% of that experienced on the larger Four County Transit and District 3 Transit operations and about double the average ridership for the other small peer systems.

The lower numbers in passengers per revenue mile for STAR Transit of 0.12 (about 42% lower than the average for the six peer systems) and passengers per revenue hour of 2.88 (about 23% lower than the average of the six peer systems) similarly fall in the middle of the range of values

associated with the other peer systems. The average costs per trip of $12.01 reported by STAR as well as the average cost per vehicle revenue hour of $34.56 are higher than the comparable average numbers for these performance measures reported by the six peer systems. However, the average cost per vehicle revenue mile of $1.44 reported by STAR is about 20% lower than the average number of the six peer systems.

3.3 On-Board Passenger Survey

A comprehensive on-board passenger survey to collect the information on the demographic and travel characteristics of the current riders was conducted for STAR Transit in February of 2009. The survey included four basic groups of questions dealing with: rider's demographic information, specific trip information, a rating by the passengers of the current day service being provided, and passenger suggestions as to the importance of future service improvement needs. The summary results used for service evaluation.

Appendix E at the end of this report presents a technical memorandum with detailed findings from the on-board transit rider survey.

3.4 Level of Support for Transit

STAR Transit serves an important function for the residents of Accomack and Northampton Counties. STAR Transit has received a positive reaction from the people of the region and residents regularly express the opinion that it is a good service for the community. A stakeholder at the December 18th meeting (**Appendix F**) expressed the opinion that STAR Transit benefits the community, especially in its demonstrated ability to provide the poorest residents of the two counties with an opportunity to travel to and from medical appointments, shopping, work locations, and other important destinations.

The Counties of Accomack and Northampton are the primary source of local financial support for the STAR Transit system. STAR Transit's manager stated that the level of support from the counties also extends to allowing fueling of the busses at the county fueling location. However, neither of the counties appears to be prepared to make larger financial contributions to the operations of the system at this time.

3.5 Focus Groups and General Community Input

STAR Transit has not conducted any formal focus group meetings with existing riders to discuss transit services and potential changes to the route structure and/or the current level of service. Feedback to STAR Transit management on these topics has come most recently from comments provided on the ridership surveys conducted in early 2009 and historically from direct one-on-one communication with the system's bus drivers by the local riders.

3.6 Recent Changes in Patronage, Operating Costs, and Operating Revenue

As stated previously, the STAR Transit system's annual ridership has generally increased since the inception of service. This growth has occurred through a combination of route expansion, greater public awareness of the system, and economic factors. Recently, ridership has continued to hold steady even with a reduction in the number of routes being operated.

Annual system operating costs have recently increased due to increased fuel/oil costs. The recently imposed FY2009 DRPT budget cuts and an inability for sponsoring organizations/counties to make up the resulting deficit have combined to result in reduced operating revenue and the potential for a shortfall exists.

3.7 Deviations from Service Standards and Potential Remedies

As a deviated fixed-route and demand-responsive public transportation program whose service area encompasses a large and generally low density rural portion of the Commonwealth, there are a number of different services standards and operating guidelines that can be applied to the operations of the STAR Transit System. Some of these service standards and operating guidelines have been developed at a national level through research sponsored by the Federal Transit Administration (FTA) or by the Transit Cooperative Research Program (TCRP) of the Transportation Research Board. Others have been developed with a focus on rural public transit services being operated in an individual state. At the present time, DRPT has not developed a set of general transit service standards for application to rural systems such as STAR Transit.

In May 2002, the Maryland Transit Administration of the Maryland Department of Transportation published a report titled "Maryland Transit Guidelines." Prepared in conjunction with the Maryland Comprehensive Transit Plan (MCTP), the Maryland Transit Guidelines were defined as having four primary objectives or purposes[6]:

1. Provide technical guidance to transit agencies and transit providers throughout Maryland.
2. Create consistency in transit service and infrastructure throughout Maryland.
3. Establish measurable guidelines for transit.
4. Provide a basis for securing funding for transit improvements.

The Maryland Transit Guidelines encompassed all of the transit modes operating in the state, from large urban fixed guideway systems to small urban area bus and rural demand-responsive services. For the purposes of the STAR Transit TDP, the following Maryland service guidelines developed for application to rural, general public, demand-responsive transit services will be applied:

[6] Maryland Transit Guidelines, Maryland Transit Administration, Baltimore, Maryland; May 2002, Page 2.

- Reservations
- Span of Service
- System Access and Availability
- Directness
- Dependability
- Rider Compliance and No Show Policy
- Financial

A separate group of service guidelines have been developed by MTA for application to small urban and rural fixed-route transit operations. The application of each of these guidelines to the current operations of STAR Transit is discussed below.

Demand-Responsive Service Factor Evaluation:

Reservations: This criterion delineates both the minimum and maximum amount of time in advance of requested service that a rider is required to place a reservation with the transit system operator. The MTA minimum reservation period for non-ADA service such as operated by STAR Transit is "noon on the prior day" and the maximum reservation period is two weeks. STAR Transit requires a 24-hour advance notice for individual trips and allows for regular trips to be prescheduled several weeks in advance. **The current service thus satisfies the Reservations service guideline.**

Span of Service: The MTA guidelines define "span of service" as the duration of time when service is "made available" and is measured from the earliest to the latest pick-up times. For rural, non-ADA services, the MTA guidelines define span of service as from 7:00 AM to 6:00 PM on weekdays. STAR Transit currently operates demand-response service from Monday through Friday between the hours of 7:30 AM and 4:30 PM. **The current demand-response service thus appears not to satisfy the Span of Service guideline.**

Loading Guideline: The MTA service guidelines indicate that no standees are permitted at any time on demand-responsive vehicles throughout the State of Maryland. **STAR Transit satisfies this guideline by requiring all passengers to wear seatbelts at all times on the vehicles and never allowing standees on any trip.**

System Access and Availability. The MTA guidelines define the minimum "access" for demand-responsive service to be the provision of "curb-to-curb" transportation. This guideline is being satisfied by STAR Transit. The MTA guideline for "availability" defined compliance as service being provided for any trip purpose on a space/time available basis within the agency's operating service area. **STAR Transit is in full compliance with the System Access and Availability guideline across the two county areas that it serves.**

Directness. The MTA guidelines recommend that a demand-responsive trip should take no more than an hour (60 minutes) for a driving distance of up to 20 miles, and discourage transfers on demand-response systems. **STAR Transit does not schedule passenger transfers and based on data associated with the limited service area, the maximum trip time guideline is also being satisfied.**

Dependability. The MTA guideline for dependability measures whether the service is operated as scheduled and whether the service picks up all passengers who have made reservations. The MTA service guidelines involve two criteria: schedule adherence and trip fulfillment. The MTA schedule adherence criteria define "on-time" as being 15 minutes early to 15 minutes late for pick-ups and up to 15 minutes late for drop-offs. The associated "on-time" percentage for pick-ups and drop-offs is 90 percent.

STAR Transit currently operates a manual dispatching system. Driver assignment sheets define the time of all scheduled pick-ups over the course of the service day and drivers record the actual times that pick-ups and drop-offs take place for each trip. **Based on data available and a review of a small random sample of driver logs and reservation sheets, the schedule adherence guidelines generally appear to be satisfied. Similarly, the trip fulfillment criterion is being satisfied as all scheduled trips are being served.**

Rider Compliance and No Show Policy. All demand-responsive transit system operators should strive to provide all eligible patrons with no turn downs. To accomplish this goal, riders who are consistent "no shows" must be denied service so that other riders can use the available system capacity. Since its earliest days of operation, STAR Transit has implemented and maintained a consistent set of policies related to rider compliance and "no shows". Records are maintained of those persons who make a reservation but are not available to be picked up within the designated time period or who cancel a reservation on short notice. Written notification is provided to these individuals of the potential for suspension of service if the situation continues. Suspension of service has been applied where necessary and appropriate. **It appears that the Rider Compliance and No Show Policy service criterion is being satisfied.**

Financial. The cost of operating a demand-response transit system can be measured by several basic financial factors. The most commonly used factors are the average system-wide cost per passenger and the average system-wide cost per vehicle hour of service provided. As described earlier in this chapter, STAR Transit appears to be operating a very efficient and cost-effective service. The current average cost per passenger during Fiscal Year 2008 was $12.01, a value approximately 12.8% lower than the average cost per passenger of six other peer transit systems in the Commonwealth. Similarly, STAR Transit's average cost per vehicle hour of service provided was $34.96 during Fiscal Year 2008, a value approximately 18% lower than the average experienced by the other six peer transit systems. **It would thus appear that STAR Transit is providing service in a cost-effective manner.**

Fixed-Route and Deviated Fixed-Route Service Standards Evaluation:

For the purposes of the STAR Transit TDP, the following Maryland service guidelines developed for application to fixed-route bus transit services will be applied:

- Consideration of Service
- Frequency of Service
- Span of Service
- Loading Guidelines
- Service Availability and Bus Stop Spacing
- Directness
- Dependability
- Financial
- Productivity

The application of each of these guidelines to the current operations of STAR Transit is discussed below.

Consideration of Service. Among the most difficult decisions that a transit agency must make is the determination of which residents and activity centers will receive service. The transit agency receives many requests for service from citizens and businesses who are not within walking distance of any route or who would like transit routes in their neighborhoods to serve different destinations. Because transit resources are limited, it is difficult to accommodate everyone. Therefore, it is necessary to determine how to allocate the available resources to provide the best possible service. This guideline defines the minimum thresholds for employment concentrations, shopping center size, hospital size, college enrollment, and residential dwelling units that warrant consideration of service. In addition, the guidelines include qualitative factors that should be considered in indicating specific areas that a transit agency should consider for providing fixed-route transit service.

Transit service should be provided to activity centers that produce a relatively high number of trips. To assist in determining what constitutes a "major" activity center, minimum threshold levels have been suggested for different categories of activity centers. The threshold levels are designed to serve as guidelines in determining which activity centers in each category should be given primary consideration for the provision of public transportation service.

Table 3-4: Minimum Levels for Consideration of Transit Service

Activity Center	Urban	Suburban	Rural
Business concentrations (number of employees)	500	300	100
Shopping centers (size in square feet)	350,000	200,000	50,000
Hospitals (number of beds)	200	100	All
Colleges (number of students)	2,000	1,000	All
Housing developments (number of dwelling units)	400	200	100

Source: Maryland Transit Guidelines, Maryland Transit Administration, May 2002, Page 9.

In addition, there are several qualitative factors that can also be used to determine which areas should be considered for transit service. These include the following:

- *A sufficiently high population density in terms of persons per square mile in the service area*. A high population density generally indicates that an area contains the concentration of population necessary to support reasonable levels of use. However, it should be recognized that there are differences in population density and development patterns among urban, suburban, and rural service areas.

- *Service should be provided to transit-dependent populations*. The transit-dependent require transit service to meet their basic transportation needs. Transit-dependent segments of the population include those who do not have use of an automobile. The percentage of senior citizens and the location of low income housing are also measures frequently used to determine transit dependency.

- *Transit service should be provided to support economic development*. Transit service can support existing and attract potential economic activity, and consideration of service should take this factor into account.

In the case of a rural, small urban area bus system such as STAR Transit, the rural service guidelines developed by the MTA are most applicable. **All of the STAR Transit routes operate along the major travel corridors in each of the two counties that define its primary service area. Since these major travel corridors are also the locations of all of the major businesses, shopping centers, hospitals and other medical facilities, and colleges in Accomack and Northampton Counties, this service factor is being satisfied.** Most of the larger residential developments in the two counties are also located immediately adjacent to, or within a reasonable walking distance of, the current STAR Transit deviated fixed-routes services.

Frequency of Service. Frequency is expressed as the interval of time between successive transit vehicles at a particular location on a route. This length of time is defined as a route's "headway." Typically, more frequent service is regarded as more attractive service. Frequency of service is important in determining system operating cost and must match the financial capability and policy of the system.

Service frequency can be based on demand or policy considerations as to what the public considers attractive service. Demand considerations require the operator to provide a sufficient number of trips on a transit route to accommodate the passenger volume within the loading guidelines discussed below. In those instances where passenger loads are so light as to require excessive time periods between vehicles in order to conform to loading guidelines, a policy-based headway should be used. The headways shown in the table below are an attempt to balance the transit rider's desire for frequent service with the operator's need to provide service in a cost-effective manner.

Transit services in Virginia's urban areas typically operate more frequently than in the state's suburban and rural areas. In rural areas, the interval between buses can be established at the cycle time, i.e., the time it takes for one bus to make a complete round trip on the route. Finally, the headways on routes with low frequency (wide headways) should be designed, whenever possible, to conform to regularly recurring "clock face" intervals (e.g., 9:10 AM, 10:10 AM, 11:10 AM, etc.). This pattern provides increased convenience.

Table 3-5: Maximum Policy Headway

Monday-Friday	**Urban**	**Suburban**	**Rural**
Peak (6 to 9 AM and 3 to 7 PM)	20	30	60
Midday (9 AM to 3 PM)	30	60	60 or cycle time
Early Morning / Evening (Start of service to 6 AM and 7 PM to end of service)	60	60	60 or cycle time
Saturday and Sunday	**Urban**	**Suburban**	**Rural**
Midday (8 AM to 7 PM)	30	60	60 or cycle time
Early Morning/Evening (Start of service to 8 AM and 7 PM to end of service)	60	60	60 or cycle time

Data is number of minutes between buses
Source: Maryland Transit Guidelines, Maryland Transit Administration, May 2002, Page 11.

In the case of a rural, small urban area bus system such as STAR Transit, the rural service guidelines developed by the MTA are most applicable. **All of the current STAR Transit routes operate on a round trip cycle time basis.** In some situations, these cycle times for a specific round trip by each bus assigned to a route are in excess of two or three hours due to the length of the route. **However, the observed duplication of certain groups of routes whose operations are effectively paired, the Red Route and the Purple Route for example, results in an effective cycle length for those passengers who are familiar with the operating schedules of between 60 and 90 minutes.** These route-specific service frequencies are operated over the entire course of the day on those weekdays Monday through Friday when each route is in service. No Saturday or Sunday service is currently operated by STAR Transit.

Span of Service: The Maryland MTA guidelines define "span of service" as the duration of time when service is "made available" and is measured from the earliest to the latest pick-up times

during the day, as well as the days of the week the service is offered. Considerations noted earlier for the frequency of service, such as the desires of transit riders and the financial capability of the transit service provider, apply to the span of service guidelines as well.

Table 3-6: Span of Service (Start and End Times)

Day of Week	Urban	Suburban	Rural
Weekday	5 AM to 1 AM	5 AM to 10 PM	5 AM to 10 PM
Saturday	5 AM to 1 AM	5 AM to 10 PM	5 AM to 10 PM
Sunday	5 AM to 1 AM	5 AM to 10 PM	As needed

Source: Maryland Transit Guidelines, Maryland Transit Administration, May 2002, Page 12.

In the case of a rural, small urban area bus system such as STAR Transit, the rural service guidelines developed by the MTA are most applicable.

The STAR Transit system presently operates only Monday through Friday, with typical hours of operation between 6:00 AM and 6:00 PM. This 12-hour duration average service day is somewhat less than the MTA suggestion of a 17-hour span of service. **Given the low density, rural nature of the two counties served by STAR Transit and the limited employment and commercial opportunities generally available after about 6:00 PM, the current STAR Transit span of service appears to be reasonable and appropriate.**

Loading Guideline: This guideline refers to the number of people on board a transit vehicle at a single point of time. It is measured as the ratio of passengers on board to the seated vehicle capacity, and it is expressed as a percentage. To ensure that passengers will be able to obtain seats on transit vehicles for at least a major portion of their trips, loading guidelines must be established and schedules devised so that passenger volumes conform to the guidelines. Values at, or less than, 100 percent indicate that all riders have a seat. Values greater than 100 percent indicate that some passengers are standing for at least a portion of the trip. Loading standards indicate the acceptable number of standees with consideration given to both the operating period and the service area type.

Table 3-7: Maximum Load Factors

Time Period	Urban	Suburban	Rural
Peak (6 to 9 AM and 3 to 7 PM)	120%	110%	100%
Off-peak	100%	100%	100%

Source: Maryland Transit Guidelines, Maryland Transit Administration, May 2002, Page 13.

The guidelines shown in the table above allow for some standees only during the peak periods on urban or suburban transit operations. In the case of rural and small urban area transit operations, particularly those using smaller size vehicles, route planning and design principles should not anticipate any standees. In addition, due to safety concerns, it is recommended that standees not be permitted on roadways with a posted speed limit of 55 mph or higher.

In the case of a rural, small urban area bus system such as STAR Transit, the rural service guidelines developed by the MTA are most applicable. **STAR Transit fully satisfies this service guideline by requiring all passengers to wear seatbelts at all times on the vehicles and never allowing standees on any trip.**

Service Availability and Bus Stop Spacing. These transit service guidelines relate to both the availability of the transit system to potential customers as well as the spacing of bus stops along a transit route.

- *Service Availability* – In the course of evaluating both existing services and proposals for new transit services, the transit system operator must determine whether or not a specific location is "served" by the transit system, thus determining whether or not the transit service is available at that location. The standard guideline in this regard is that a location should be considered to have service only if it is within a ¼ mile walking distance to a bus stop.

- *Bus Stop Spacing* – While route alignments are the primary determinants of transit availability, a second influence on the proximity of transit is the bus stop spacing along those routes. As stated above, the key measure of the ability to access the transit system is the walking distance to the nearest bus stop. Obviously, stops at every intersection provide the shortest walking distance to the bus. However, this would adversely affect vehicle speed and trip times for patrons already riding the bus. For this reason, the placement of bus stops along transit routes requires balancing passenger convenience and speed of operation.

Bus stop spacing should also reflect the characteristics of the area being served. In some cases, the bus stop spacing guidelines should be disregarded in favor of simply considering the locations of patron concentration. This is especially true at certain commercial and high-density residential areas.

Table 3-8: Bus Stop Spacing

Measure	Downtown Core	Urban	Suburban	Rural
Bus stops per mile	10 to 12	5 to 10	4 to 6	As needed
Typical spacing (feet)	450	750	1,000	As needed

Source: Maryland Transit Guidelines, Maryland Transit Administration, May 2002, Page 14.

In the case of a rural, small urban area bus system such as STAR Transit, the rural service guidelines developed by the MTA are most applicable.

The bus stop locations along the STAR Transit routes appear to be located on the basis of the identified major transit demands of the service areas. Most of the stops are located near the entrances of business concentrations, shopping centers, and transit-dependent locations such as public schools and hospitals. Those stops located in the more developed residential areas of the various towns appear to be spaced appropriately near street corners. All of the regular

stops in the towns that are designated as time points on the public route schedules appear to be designated by bus stop signs. Some, but not all, of those stops in the surrounding counties and smaller communities that are designated time points on the route maps and schedules are also designated by bus stop signs. Other passenger pick-up and drop-off locations outside of the larger towns, particularly those along the rural routes, appear to be operated on a "flag stop" basis, where a passenger will wait at the side of the street for a vehicle and wave to the bus driver indicating a desire to board the vehicle.

Overall, it appears that the bus stop spacing guideline is being satisfied at this time. However, consideration should be given in the future to the installation of additional bus stop signs at all of the designated time points on the individual route schedules.

Directness. In order for any public transportation system to attract a substantial number of riders, transit services must be able to provide a reasonably direct trip. If a trip by public transportation is long and circuitous, riders may find an alternative mode of transportation and potential riders may be discouraged. In contrast, a more direct transit route will be considered more convenient, thereby attracting riders. As shown on the table below, the guidelines indicate that a transit trip should take no more than an hour and should not take more than twice as much time as the identical trip by automobile. The maximum scheduled time for any transfer is 15 minutes.

Table 3-9: Transit Travel Time

Measure	Urban	Suburban	Rural
Maximum trip length with transfers (minutes)	60	60	60
Maximum transit/automobile time ratio	2:1	2:1	2:1
Maximum schedule time for any transfer (minutes)	15	15	15

Source: Maryland Transit Guidelines, Maryland Transit Administration, May 2002, Page 15.

In the case of a rural, small urban area bus system such as STAR Transit, the rural service guidelines developed by the MTA are most applicable.

Most of the current STAR Transit riders do not appear to need to transfer from one route to another in order to get to their desired destinations. For them, the transit service is the most direct service. The scheduled times from end-to-end of each of the routes operated by the system are typically no more than 60 to 90 minutes. **Based on the distances and service areas of the routes operated by STAR Transit, the travel times by transit appear to be somewhat similar to the travel time by automobile, particularly for moderate length trips along the US Route 13 corridor or for a local trip within one of the towns.** The transit/automobile time ratio thus appears to be reasonable and appropriate for this system. It appears that this service guideline is being satisfied.

Dependability. Transit agencies must provide the transit patron with a reasonable guarantee that the scheduled service will run and will operate according to the published timetable. This guideline gauges whether transit service is operated as scheduled and whether or not the

transit trip is operated at all. The dependability of the transit service is important to people who typically plan trips around the availability of the service. Moreover, riders associate a time penalty with unreliable transit service, which reduces the attractiveness of public transportation.

Dependability of transit service is typically measured in two ways: schedule adherence and trip availability. The first is a measure of how closely the service conforms to the established and published schedule. The second is the percentage of scheduled service that fails to operate (i.e., missed trips). These two criteria are each summarized in the accompanying tables.

- *Schedule Adherence* – Schedule adherence measures the difference between scheduled times and the time the vehicle actually passes a particular location. The schedule adherence service guideline consists of two parts: (1) the definition of "on-time" and (2) the proportion of buses that operate within the "on-time" range. "On-time" is defined here as zero minutes early to five minutes late. This allows the bus reasonable latitude for encountering general delays without unduly inconveniencing the waiting patron. Vehicles should never be early, since this would cause patrons to miss the bus entirely, and often subjects riders to an excessive wait for the next scheduled bus. The "on-time" percentage for this service guideline is 85 percent. The on-time performance can be measured from the route terminals, time points along the route, or at points where the route intersects with other transit routes.

Table 3-10: Schedule Adherence

Measure	Urban	Suburban	Rural
Definition of "on-time" (minutes)	0 early/5 late	0 early/5 late	0 early/5 late
Percent on-time	85^	85%	85%

Source: Maryland Transit Guidelines, Maryland Transit Administration, May 2002, Page 16.

- *Trip Availability* – It is inevitable that difficulties will occur occasionally that will disrupt operations and require trips to be cancelled. While at times delays cannot be avoided, the transit operator should take steps to ensure that they are not compounded by preventable disruptions in bus service. In terms of the allowable disparity between the service scheduled and operated, this guideline has been established at 0.5 percent, which permits only one trip in 200 to be missed. In view of the frequency of service operated in many rural and small urban areas, as well as the possible need to transfer between buses to complete many trips, a rigorous guideline is appropriate.

Table 3-11: Trip Availability

Measure	Urban	Suburban	Rural
Missed trips	0.5%	0.5%	0.5%

Source: Maryland Transit Guidelines, Maryland Transit Administration, May 2002, Page 16.

In the case of a rural, small urban area bus system such as STAR Transit, the rural service guidelines developed by the MTA are most applicable.

The "on-time" performance rate of STAR Transit appears to be generally acceptable. The feedback of bus "on-time" performance by passengers as part of the on-board ridership survey described in a previous section of this chapter indicated that passengers gave STAR Transit a good rating for this performance. About 84% of the passengers on the fixed route services were satisfied with the system's "on-time" performance. **Although the system does not regularly monitor on-time performance along each route, the results of the on-board survey, combined with the limited data available, would appear to indicate that the general "on-time" performance rate of STAR Transit is better than 85%.** A more regular process of monitoring on-time performance on all of the routes operated by the system should be implemented in the future, with field data collected at least once or twice a year.

The transit services provided by STAR Transit also appear to be very consistent. **The transit system always follows the published bus schedules to provide the services, weather permitting.** Based on information provided by the transit system manager, it would appear that the "trip availability" service guideline is being satisfied at this time. A more formal process of monitoring this factor should be implemented in the future.

Financial. This criterion specifies acceptable values for system farebox recovery, which is the ratio of revenue to operating cost expressed as a percentage. To assure consistency with other related DRPT legislation and operating guidelines, revenue includes fares paid by patrons along with ancillary revenue such as advertising.

Farebox recovery is a measure that provides transit agencies with a broad gauge of the financial condition of the transit system. The suggested guidelines for public transit systems in Virginia vary by the service area type. The range of 10%-40% for total revenue and 5-20% for passenger revenues reflect the increased intensity of transit system use in larger and more densely populated urban areas.

Table 3-12: Financial Guidelines

Measure	Urban	Suburban	Rural
System farebox recovery (total)	40%	20%	10%
Passenger fares	20%	10%	5%

Source: Adapted from Maryland Transit Guidelines, Maryland Transit Administration, May 2002, Page 17.

In the case of a rural, small urban area bus system such as STAR Transit, the rural service guidelines developed by the MTA are most applicable.

The revenue for STAR Transit includes passenger fares only. Based on the latest available system operating statistics of STAR Transit for FY2008, the annual passenger fare revenue was $53,925 for the whole system. This value represents about 10.9% of the total reported system

annual operating cost of $492,546. **This value generated solely by STAR Transit passenger fares is slightly above the 10% figure cited in the table above for the full system farebox recovery value inclusive of both passenger fares and other operational revenues. This achievement is one of particular note.**

It is also acknowledged that the local governments who support STAR Transit appear to view it as a valuable local public service. The local governments have been willing to provide the necessary operating assistance funding to maintain and modestly expand the service since its initiation. The community leaders also appear to recognize that a large portion of the transit system's ridership have relatively low personal incomes, such that a base boarding fare of $1.50 per trip ($3.00 for a single round trip) on the fixed-route service and $3.00 per trip ($6.00 for a round trip) on the demand-responsive service represents a noticeable portion of their personal disposable income.

Productivity. The most useful measure of a public transportation system's productivity is passengers per revenue hour. It measures the number of passengers who, on average, board a transit vehicle for every service hour the vehicle is operated. This is a useful measure because it provides the operating agency with a method to measure service without focusing on operating costs. Similar to the farebox recovery ratio, this service guideline for transit systems in Virginia will vary by the service area type. This reflects the increased intensity of transit system use in larger and more densely populated urban areas.

Table 3-13: Productivity

Measure	Urban	Suburban	Rural
Passengers per revenue hour	20	10	5

Source: Maryland Transit Guidelines, Maryland Transit Administration, May 2002, Page 17.

In the case of a rural, small urban area bus system such as STAR Transit, the rural service guidelines developed by the MTA are most applicable.

Based on the latest available system operating statistics for STAR Transit for FY2008, the number of annual passenger is 40,999 and the annual revenue hours are 14,250 for the whole system. **The associated value of passengers per revenue hour for the entire system is approximately 2.88.**

While this value is lower than the value of 5 shown in the table above, it must be recognized that Virginia DRPT has not yet formally adopted a set of transit operating guidelines for statewide application as has the Maryland Transit Administration. Thus, while this factor should be regularly monitored, it cannot be considered to be a major consideration at this time. Moreover, STAR Transit is a relatively new transit system, having existed only since 1996. Since that time, the system has expanded beyond its original route to provide more comprehensive

service to both Accomack and Northampton Counties. **As system ridership continues to grow over time, the productivity service factor will need to be regularly monitored.**

3.8 Potential Solutions to Gaps or Service Deficiencies

The demand for transit services continues to grow in the region as a result of modest population growth and more rapid growth in the number of elderly residents. At the same time, constraints exist on the ability of the system to respond to these demands.

Although ridership was exceeding the original expectations, STAR Transit was unable to keep the Ruby Express operational due to budget concerns brought about by rapid increases in the price of gasoline. Likewise, limited service is oftentimes mentioned as a deficiency. If STAR Transit is able to obtain enough funding from local, state, and federal governments, the reinstitution of discontinued service, as well as the evaluation of other routes, would be considered.

Hispanic populations are a growing segment of the total service area population, yet this group currently make up only about 5-10% of the total system ridership based upon input from the Transit Manager. This market is an underutilized potential source of ridership. Language barriers may be a deterrent to greater ridership.

3.9 Potential Remedies for Equipment and Facility

The STAR Transit maintenance facility in Tasley was constructed in 2008 and occupied in February 2009. The new transit headquarters has many improvements over the old rented facility; however, there are many deficiencies that still need to be addressed. Because of the limited number of staff present on-site and the early and late operating hours, the facility needs a security system. In addition, the site needs office furniture and equipment. Equipment is also needed to improve the functionality of the maintenance bay.

The current fleet has a very limited number of spare busses available to replace those that may be out of service due to breakdowns. A lack of bus stop passenger waiting structures along some of the routes could also be considered a deficiency. Funding issues and agreements with property owners are the biggest impediment to addressing this deficiency.

3.10 Title VI Report and FTA Triennial Review

As a designated sub-recipient of FTA capital and operating assistance funding through the Virginia Department of Rail and Public Transportation (DRPT) whose services are provided in a rural portion of the Commonwealth, STAR Transit is not required to prepare and submit its own separate Title VI report or the associated FTA Triennial Review. The statewide Title VI report

and Triennial Review prepared by DRPT satisfies this FTA requirement. However, STAR Transit is still required to follow the Title VI and Title VI-dependent guidelines for Federal Transit Administration recipients as described in FTA Circular C 4702.1A. Thus, for example, the appropriate provisions of the NEPA process were followed in connection with the planning, design, and construction of the new Tasley transit operations and maintenance center. Similarly, all official publications issued by STAR Transit include appropriate language concerning non-discrimination.

4.0 SERVICE EXPANSION PROJECT DESCRIPTIONS

This chapter presents a description of potential service and facility improvement needs over the multi-year duration of the transit plan. The proposed service improvements in this chapter reflect the agency's desire for improved services in this region of the State over the next five to seven years. The contents of this chapter include the following elements:

- Demographic analysis that identifies anticipated changes in population and employment within the service area.
- A description of potential needs based on the work undertaken to date in connection with the TDP development. This work reflects inputs from the transit agency staff, and the technical analysis undertaken by the members of the consultant team.
- Preliminary capital and operating cost estimates associated with each of the various identified potential needs and a discussion of potential policy, funding, or operating issues associated with the defined needs. This data will include estimates of potential ridership response to the various service improvements.

Each of these topics is discussed in more detail below.

4.1 Demographics Analysis of Anticipated Population and Employment Changes

The STAR Transit service area covers the counties of Accomack and Northampton on the Delmarva Peninsula. With the exception of a number of small urban centers that house concentrations of population and employment, most of the land area is primarily agricultural, forest, or wetlands.

As shown in **Table 4-1**, the estimated present day population of the STAR Transit service area (based on 2008 data) is approximately 51,600 persons, spread across a total land area for the 12 counties of approximately 663 square miles. The current population represents an increase of only 200 persons over the population in 2000, which represents a nominal growth. The resulting average population density is approximately 78 persons per square mile. Employment for this area was estimated to be approximately 23,400 workers.

Table 4-1: Existing Study Area Population and Employment

Counties	2000 Population	2008 Population Estimate	County Area (Sq. Miles)	2000 Population Density (Persons/ Sq.Mi.)	2008 Population Density (Persons/ Sq.Mi.)	2009 Employment
Accomack County	38,305	38,180	455.24	84.14	83.87	17,759
Northampton County	13,093	13,415	207.37	63.14	64.69	5,638
Total	51,398	51,595	662.61	77.57	77.87	23,397

Sources:
2000 Population and County Area – 2000 Census
2008 Population Estimates – http://quickfacts.census.gov/qfd/states/
2009 Employment Data (Average: January –June 2009) - Virginia Employment Commission

Future year forecasts of population for the two counties for the years 2010, 2020, and 2030 were obtained from the Virginia Employment Commission. Employment projections for these rural counties were not available from the Virginia Employment Commission.

For the purposes of the STAR Transit TDP, a future plan horizon year of 2015 has been identified, six years from the current base transit operations year of 2009. **Table 4-2** presents estimates of future population for the years 2010, 2015, 2020, and 2030 for each of the STAR Transit service area counties. The 2015 estimates were interpolated from the 2010 and 2020 estimates.

Table 4-2: Study Area Population Forecasts

Counties	2000	2010	2015	2020	2030	2010-2015 Change	
						Number	Percent
Accomack County	38,305	40,245	41,215	42,185	44,249	970	2.41%
Northampton County	13,093	13,990	14,461	14,932	15,931	471	3.37%
Total Study Area	51,398	54,235	55,676	57,117	60,180	1,441	2.66%

Source: 2000 Census and Virginia Employment Commission Community Profiles for each county.

Information suggests a population growth rate for the region of 2.66 percent from 2010 to 2015, or an annual growth of just over 0.53 percent per year. **Table 4-3** presents the elderly population forecast for the study area. Note that the elderly population rate of growth (for the next 5 years) is slightly more than four (4) times the rate of general population growth. This trend suggests that the demand for transit services may increase in the future. **Figure 4-1** shows the projected total population and elderly population for all STAR service jurisdictions.

Table 4-3: Future Year Study Area Elderly Population Forecasts

Counties	2000	2010	2015	2020	2030	2010-2015 Change	
						Number	Percent
Accomack County	6,389	6,757	7,436	8,115	9,741	679	10.05%
Northampton County	2,771	2,777	3,143	3,509	3,306	366	13.18%
Total Study Area	9,160	9,534	10,579	11,624	13,047	1,045	10.96%

Source: 2000 Census and Virginia Employment Commission Community Profiles for each county.

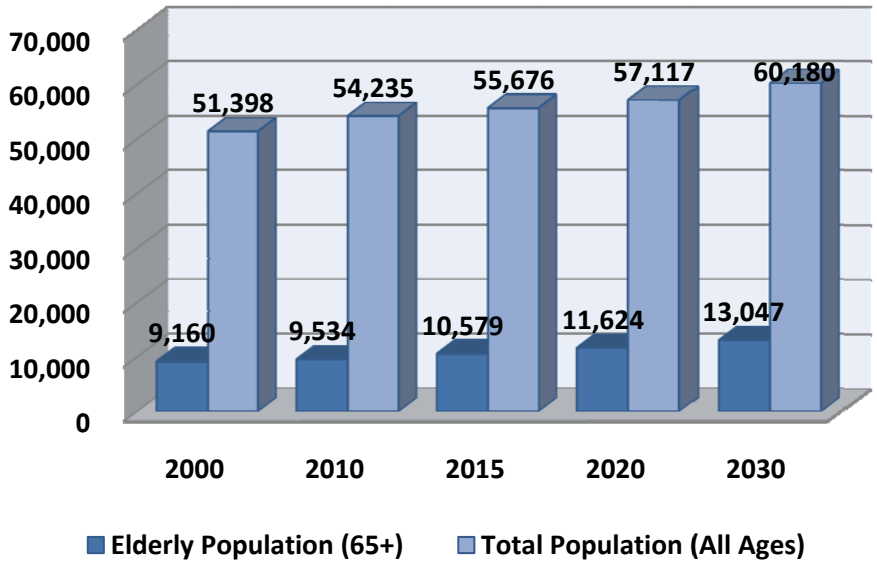


Figure 4-1: Projected Population (All STAR Service Jurisdictions)

4.2 Potential Service Expansion and Facility Needs

Currently, STAR Transit operates four (4) deviated fixed routes and one (1) demand-response route with an operating budget of $492,546 per year (2008 fiscal year). The system accommodated a total of 40,999 passenger trips in FY2008 that generated approximately $54,000 in fare revenue. Current unit operating rates for the system average $1.44 per revenue mile and $34.56 per revenue hour. Assuming a two percent cost increase per year over the duration of the TDP period from FY2010 to FY2015 applied to both capital and operating costs and a 0.53 percent ridership growth rate per year reflective of expected general service area population growth over this time period, the following projections can be made:

No Change in STAR Transit Service through FY2015:

This future service scenario assumes no change in the level of service provided by STAR Transit in comparison to that which is being operated at the present time though FY2015. To assess the operating conditions for the outlying years, the following assumptions were made:

- FY2009 Operating Budget and Fare Revenue inflated at two (2) percent over FY2008. FY2010 values are from the approved FY2010 Budget.
- No change in annual revenue hours or revenue miles of service compared to FY2008.
- No new sources of passenger growth other than nominal growth associated with general population growth of the study area.
- No new source of fare revenue, including raising fares, other than nominal increases due to ridership growth.
- Assumes two (2) vehicles will be replaced in most years to maintain average transit vehicle fleet 4-year / 100,000 mile vehicle life cycle.
- Assumes present year (FY2009) average replacement vehicle cost of $56,500. (This value is based on Bay Transit's vehicle replacement cost as part of the Federal Stimulus package.) Future year replacement vehicle cost inflated at two (2) percent per year.

These estimated future trends in annual operating cost, passengers transported, and vehicle replacement are similar to what has been actually observed in recent years by this system.

Table 4-4 presents the No Action Scenario Operating statistics through FY2015.

Table 4-4: Projected No Action Scenario Operating Statistics

	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015
Operating Budget	$502,400	$579,400	$591,000	$602,800	$614,900	$627,200	$639,700
Passenger Trips	41,200	41,400	41,700	41,900	42,100	42,300	42,500
Fare Revenue	$54,200	$53,900	$54,200	$54,500	$54,800	$55,100	$55,400
Cost per Revenue Mile	$1.47	$1.70	$1.73	$1.76	$1.80	$1.84	$1.87
Cost per Revenue Hour	$35.26	$40.66	$41.47	$42.30	$43.15	$44.01	$44.89
Est. No. of New Vehicles	2	2	2	1	2	2	2
Estimated Capital Cost (vehicles)	$113,000	$115,300	$117,600	$60,000	$122,300	$124,800	$127,300

Note: FY2009 Operating Budget and Fare Revenue inflated at 2% over FY2008. FY2010 values are from approved FY2010 Budget, which explains the large difference in values between the two years.

Potential Future Service Growth Scenarios:

In June 2008, DRPT completed a report *Accomack-Northampton (PDC22) Coordinated Human Service Mobility Plan*, a study that reviewed the transportation mobility, or lack of, for seniors, persons with disabilities, and individuals with low income. This study included a series of workshops and developed the following strategies:

1. Expand availability of demand-response and specialized transportation services to provide additional trips for older adults, persons with disabilities, and persons with lower incomes.
2. Establish outreach and provide simplified access to information regarding existing transportation options in the region, including establishment of a centralized point of access.
3. Continue to support and maintain capital needs of coordinated human service/public transportation providers.
4. Implement new public transportation services or operate existing public transit fixed-route services on a more frequent basis.
5. Provide targeted shuttle services to access employment opportunities, particularly those in newly developing industrial areas.
6. Bring new funding partners to public transit/human service transportation.
7. Build coordination among existing public transportation and human service transportation providers.
8. Establish a ride-sharing program for long distance medical transportation.
9. Establish or expand programs that train customers, human service agency staff, medical facility personnel, and others in the use and availability of transportation services.

Some of the strategies discussed within the report as possible general transit and mobility services improvements include:

- Around-the-clock transportation services to the poultry plants.
- Weekend services for all groups.
- After-hours transportation services for after-school activities for lower income youth.
- Increased demand-response services.
- Increased fixed-route services.
- Improved transportation services to link persons with lower income to shopping areas.

Considering the strategies developed as part of the above mentioned study, three potential services have been identified that STAR Transit could implement to address regional needs. These scenarios have been identified for potential implementation in the mid-term to longer-range future of the TDP time period; any growth within the next one to two years given the current economic climate is unlikely as strong financial support is not available from the localities.

These potential service expansion scenarios have been identified in coordination with STAR Transit management:

- Resumption of the Ruby Route (demand-response route previously operated and terminated in 2008 as a cost saving measure),
- Expansion of regular STAR Transit service to Saturdays
- Development of a new fixed-route service to connect with Hampton Roads Transit (HRT) on the south side of Hampton Roads crossing the Chesapeake Bay Bridge Tunnel.

All three of these potential service expansion scenarios would require an increase in the current allocation of local government operating assistance and capital acquisition funding match as well as the provision of sufficient State and Federal financing for required vehicle acquisitions and operating assistance.

Resumption of the Ruby Demand-Response Route. The Ruby Route was the second demand-response route that STAR Transit provided until its discontinuation as part of cost saving measures. This service does not have a fixed route of travel as it provides services based on the origin and destination of each rider. The primary assumptions associated with the potential resumption of the *Ruby Express Demand-Response Route* are as follows:

- Demand-response route would provide service 8 hours per day Monday to Friday, requires 2 hours dead time before and after to position for services.
- Assumes hourly cost and mileage per hour of service are the same as system average.
- Assumes 1 bus, 1 driver. 2008 salary is $9.00/hr.
- Ridership: Year 1 at 50% Green Bus, Year 4 at 100% Green Bus, ridership increase assumed at regional growth rate thereafter. FY 2008 Green Bus ridership approx. 6,000.
- Assume other routes not affected with introduction of new service (i.e. maintain ridership levels).
- Assume 50% of demand response eligible for reduced fare ($2), remaining pays full fare ($3), for an average fare of $2.50/rider.
- Service runs approx 62,000 miles every year, replacement schedule would be 2 buses every 3 years (buy a bus in beginning of year 1, buy a bus mid-year in year 2, no bus in year 3). Bus replacement costs are consistent with the No Action Scenario.

Table 4-5 presents the operating statistics for the reinstitution of the Ruby Route.

Table 4-5: Scenario 1 – Return of Ruby Route Operating Statistics

	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015
Annual Hours of Operations			2,600	2,600	2,600	2,600	2,600
Annual Mileage			62,300	62,300	62,300	62,300	62,300
Operating Budget			$107,800	$110,000	$112,200	$114,400	$116,700
Passenger Trips			3,050	4,090	5,130	6,190	6,230
Fare Revenue			$7,620	$10,210	$12,840	$15,480	$15,570
Cost per Revenue Mile			$1.73	$1.76	$1.80	$1.84	$1.87
Cost per Revenue Hour			$41.47	$42.30	$43.15	$44.01	$44.89
Est. No. of New Vehicles			1	1	0	1	1
Estimated Capital Cost			$58,800	$60,000		$62,400	$63,600
Estimated New Personnel Wages			$24,800	$25,300	$25,800	$26,400	$26,900

Note: Estimated cost beyond the No Action Scenario. Most values in table have been rounded.

As illustrated in the above table, the reinstitution of the Ruby Route service is estimated to increase the annual STAR Transit operating cost by approximately $107,800 in its first full year of operation. It is estimated to attract approximately 3,050 passengers, and it could generate passenger fare revenues of about $7,600. As the reinstituted Ruby Route service continues to grow and develop, it is estimated that the annual incremental operating cost would increase to about $116,700 per year, that annual ridership would increase to about 6,230 passengers, and that annual passenger fare revenues would grow to about $15,600 in FY2015.

Initiation of Regular Service on Saturdays. The desire exists to expand the transit services to Saturdays. Only several routes would initially provide service. The primary assumptions associated with the potential initiation of *STAR Transit Service on Saturdays* are as follows:

- Saturday service would be initially provided on only three routes (two fixed routes and one demand-responsive route) from 8:00 AM until 4:00 PM. Busses would need dead time before and after hours of service for positioning and returning to the garage.
- Ridership forecast assumes a conservative estimate; average daily ridership would be equal to approximately 75% of the currently observed (and projected future year) daily average weekday ridership.
- This new service would not be anticipated to be provided until at least FY2012 due to current and projected near term local economic conditions.
- Assumes that 50% of the ridership on each of the fixed routes and demand-response route would qualify for fare discount.
- Assumes hourly cost and mileage per hour of service are the same as system average.

- Service would run nearly 40,000 miles per year, which would require vehicle replacement at a faster rate as net mileage is increased. This equates to two new buses every 5 years. Bus replacement costs are consistent with the No Action Scenario.

Table 4-6 presents the operational statistics for the Saturday Services.

Table 4-6: Scenario 2 – Saturday Service Operating Statistics

	2009	2010	2011	2012	2013	2014	2015
Annual Hours of Operations				1,560	1,560	1,560	1,560
Annual Mileage				37,400	37,400	37,400	37,400
Operating Budget				$66,000	$67,300	$68,700	$70,000
Passenger Trips				3,430	3,450	3,470	3,490
Fare Revenue				$5,490	$5,520	$5,550	$5,580
Cost per Revenue Mile				$1.76	$1.80	$1.84	$1.87
Cost per Revenue Hour				$42.30	$43.15	$44.01	$44.89
Est. No. of New Vehicles				1	0	0	1
Estimated Capital Cost				$60,000			$63,600
Estimated New Personnel Wages				$15,200	$15,500	$15,800	$16,100

Note: Estimated cost beyond the No Action Scenario. Most values in table have been rounded.

As shown in the Scenario 2 table, it is estimated that the initiation of Saturday service in FY2012 by STAR Transit would result in an incremental increase in the system's annual operating cost by about $66,000. It would attract an additional 3,430 passengers per year and would generate additional farebox revenues of about $5,500. Assuming that a constant amount of service (as measured in terms of vehicle miles and vehicle hours) would be provided on Saturdays over the TDP period through FY2015, it would be expected that only modest increases in annual passengers would be experienced. By FY2015, the incremental operating cost of this service scenario is estimated to be approximately $70,000 annually, with annual revenues of about $5,600 per year generated by nearly 3,500 annual passengers.

Hampton Roads Connector Service. The initiation of the suggested new route to connect the STAR Transit service area with the Hampton Roads Transit (HRT) system on the south side of Chesapeake Bay Bridge-Tunnel would be unlikely within the proposed five-year window of the TDP. However, it may be a possibility for implementation beyond this period. For the purposes of illustration, it has been assumed that this new service linking the Cape Charles community in Northampton County with HRT operations in the City of Virginia Beach just beyond the southern terminus of the Chesapeake Bay Bridge-Tunnel would be initiated in FY2016. Under this assumption, the estimated costs of this system enhancement scenario starting in FY2016 are presented below.

The primary assumptions associated with this proposed new service are as follows:

- Route runs from the community of Cape Charles in Northampton County to the Bayview area of the City of Virginia Beach; Cape Charles was chosen as the origin for the route as it serves as the southern terminus of the Red and Purple Routes, ideal for any potential transfers from those routes.
- Travel distance is approximately 33 miles per direction, and the route is assumed to make 4 round trips per day. Route would provide service 8 hours per day Monday to Friday, and it requires 2 hours dead time before and after to position for services.
- Assume fares at $3 per passengers, no discounts, ridership of 8,000 first year of operations.
- The route would require the use of one (1) new bus and one (1) full time driver over the normal Monday-Friday period of its operation.
- Annual incremental service changes would be approximately 68,600 revenue miles per year and approximately 2,600 hours of per year.
- Requires purchase of a new bus. With average service of 68,600 miles per year, bus replacement schedule would require 2 buses every 3 years.
- The estimated unit costs in terms of the cost per revenue mile and cost per revenue hour are not anticipated to change from those shown for the No Action Scenario.

Table 4-7 presents the operational statistics for the Hampton Roads Connector.

Table 4-7: Scenario 3 – Hampton Roads Connector Operating Statistics

	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Annual Hours of Operations						2,600
Annual Mileage						68,600
Operating Budget						$125,900
Passenger Trips						8,000
Fare Revenue						$24,000
Cost per Revenue Mile						$1.83
Cost per Revenue Hour						$48.44
Est. No. of New Vehicles						1
Estimated Capital Cost						$64,900
Estimated New Personnel Wages						$27,400

Note: estimated cost beyond the No Action Scenario. Most values in table have been rounded

As shown in the Scenario 3 table, the initiation of such a new route to connect the Virginia Eastern Shore counties with the south side area of the Hampton Roads region is estimated to result in increased annual system operating costs of nearly $126,000 in FY2016 and transport approximately 8,000 passengers per year. The initiation of such a new service would have to be closely coordinated by both STAR Transit and HRT management and operations staff in order to ensure its success. This service would require optimal arrival into a transfer center with HRT, as well as an optimal departure time from this transfer point, to make the trip attractive to potential riders.

5.0 SERVICE AND FACILITY RECOMMENDATIONS

This chapter identifies service and facility needs that are recommended for inclusion over the multi-year duration of the transit plan. A more comprehensive listing of potential services and facility needs were identified in the prior chapter of this TDP. Recommended service and facility improvements presented in this chapter are based on the previously described scenarios that are desired by STAR Transit management.

Where sufficient federal, state, and local funding has been identified for either the estimated capital or operating costs associated with a specific recommendation, the activity has been categorized as achievable under the fiscally "constrained" transit development plan. Where a substantial portion or the total required amount of estimated capital or operating costs for a specific action cannot be easily identified, the activity has been identified as being in need of additional funding and has been considered to be achievable only under the fiscally "unconstrained" transit development plan. This designation does not mean that the action cannot be accomplished during the six-year TDP cycle ending in FY 2015, but rather that additional sources of federal, state, or local funding beyond those currently anticipated to be available to the STAR Transit System will need to be identified and committed to the specific project.

5.1 Service Recommendations

Chapter 4 of this TDP identified the following potential service expansions for consideration over the TDP's six-year time period of FY 2010 to FY 2015, in addition to the continuation of the current STAR Transit level of operations:

1. Reinstitution of the Ruby Demand-Response Route
2. Initiation of Saturday Services – two (2) fixed routes and one (1) demand-response route
3. Initiation of the Hampton Roads Connector Service (FY2016)

As was noted in Chapter 4, these three potential service expansion projects are unlikely to be initiated in the short term due to the current fiscal situation. But these services can be considered for the later years of the TDP, based on available funds for operating and capital costs. The Ruby Route would resume in FY2011 and have an operating budget of approximately $107,800 in its first year of operation. The Saturday Services would be initiated in FY2012 and would require approximately $66,000 for the operating budget in its first year of operation. The Hampton Roads Connector would not likely be funded under the planning horizon of this TDP, but it could be initiated in FY2016. It would have an operating cost of approximately $125,900 in its first year of operation.

As was described in Chapter 3, the total annual revenues (passenger fares and contract revenues) generated by STAR Transit's operations in FY 2008 represented approximately 10.9 percent of the total annual operating costs. The remaining net operating costs were funded during that year through a combination of local government (33 percent), state government (17 percent), and federal government (50 percent) funds (**Appendix D**).

Because of the recent economic downturn, it is expected that the local government tax base will not be growing at a significant rate. In addition, future federal and state funding levels are somewhat uncertain at this point, with the level of state operating assistance support having recently experienced a reduction in funding.

Therefore, it is recommended that STAR Transit's top priority be to continue its current level of operations, then expand to provide the three proposed service routes as funding commitments are made available to support these services. The proposed initiation of the three new services should only be considered an element of the "unconstrained" TDP program of projects. Should additional operating assistance funds become available from federal, state, or local sources, one or more of these three routes could be designated as an element of the "constrained" TDP program of projects.

5.2 Facility Recommendations

The STAR Transit maintenance facility in Tasley was constructed in 2008 and occupied in February 2009. The new transit headquarters has many improvements over the old rented facility; however, there are many deficiencies that still need to be addressed, as identified in **Section3.9**. As funding becomes available, a security system should be considered for the facility, new office furniture and equipment should be purchased. Shop equipment should be purchased to improve the functionality of the maintenance bay.

5.3 Vehicle Fleet Recommendations

Existing operating vehicle replacement

The desire is to maintain the fleet's average age/life cycle at 4 years or 100,000 miles, which would necessitate replacement of about 2 vehicles every year. Thus, the fleet replacement schedule would be:

- FY2009: Two (2) replacement vehicles
- FY2010: Two (2) replacement vehicles
- FY2011: Two (2) replacement vehicles
- FY2012: One (1) replacement vehicles
- FY2013: Two (2) replacement vehicles
- FY2014: Two (2) replacement vehicles
- FY2015: Two (2) replacement vehicles

Fleet expansion

Chapter 4 presented three operating scenarios for service expansions. Given the current fiscal situation, it is unlikely that these additional services would be funded without strong local support. If the fiscal situation changes and more funding becomes available or strong local support allows it, the expansion of services would require additional buses to be purchased (Ruby Route and Hampton Roads). In the case of the Saturday Services, the buses would need to be replaced at a faster rate, as this service would be using the buses that are assigned on the weekday routes (the increased weekly mileage would mean that the buses would reach the end of their useful life slightly faster, so it would accelerate the replacement of the existing buses if this service was initiated). The following is the purchasing schedule for the expansion scenarios identified in Chapter 4:

- Ruby Demand-Response Route (FY2011): 1 bus in FY 2011, FY 2012, FY 2014, and FY 2015
- Saturday Services (FY2012): 1 bus in FY 2012 and FY 2015 (accelerates the replacement schedule of the existing fleet)
- Hampton Roads Connector (FY2016): 1 bus in FY 2016 (service would not begin under current horizon plan of this TDP)

6.0 CAPTIAL IMPROVEMENT PROGRAM

This chapter describes those capital programs (vehicles, facilities, and equipment) required to carry out the operations and services set forth in the previous chapters.

6.1 Vehicle Replacement Program

As was noted in prior chapters of this TDP, STAR Transit presently has a total vehicle inventory of seven (7) buses and two support vehicles located in the facilities of the different counties. These buses are gasoline engines and model year 2005 or newer. The fleet was presented in Chapter 1.

In recent years, STAR Transit has typically acquired one or two buses in any given year. This represents replacements for existing vehicles that have reached the end of their useful life. Assuming that this typical vehicle replacement cycle is continued over the next several years through available funding from Federal, State, and Local governments, **Table 4-4** in Chapter 4 presented the number of vehicles required to be purchased each year, as well as the capital costs, to maintain the vehicle fleet at the desired useful life cycle.

6.2 Vehicle Expansion Program

Three service expansion projects were identified in Chapter 4. If strong local support exists to implement these services, additional buses would be needed for the Ruby Demand-Response Route and the Hampton Roads Connector Services. In the case of the Saturday Services, the same buses that are used for the weekday services can also be used for this service. However, it would simply increase annual mileage of the buses, thereby requiring faster vehicle replacements. **Table 4-5** (Ruby Service), **Table 4-6** (Saturday Service), and **Table 4-7** (Hampton Roads Connector) presented the vehicle purchase requirements for each of these three services.

6.3 Facility Improvement Program

As funding becomes available, a security system, office furniture and equipment, and shop equipment should be purchased for the new facility, as described in **Section 5.2**.

7.0 FINACIAL PLAN

The financial plan is a principal product of the TDP. It is in this chapter that an agency demonstrates its ability to provide a sustainable level of transit service over the TDP time period, including the rehabilitation and replacement of capital assets. This chapter identifies potential funding sources for annual operating and maintenance costs and funding requirements and sources for bus purchases and other facility improvements.

7.1 Operation & Maintenance Costs and Funding Sources

Based on the latest budget information available from STAR Transit for the last completed fiscal year, the system's operating budget was approximately $495,000 in FY 2008. In FY 2009, the operating costs up to August 31 were approximately $330,000, which would extrapolate to approximately $360,000 for the full fiscal year. There are a variety of reasons for the decrease in operating costs:

- Declining price of gasoline
- Elimination of the Ruby Route in FY 2008 (so FY 2008 includes cost for partial service operations)

Funding sources for the adopted FY 2008 operating budget were as follows:

- Federal Funds - $219,311 (44%)
- State Funds - $73,899 (15%)
- Local Government and Other Match Funds - $145,411 (30%)
- Passenger Fares and Contract Revenues - $53,295 (11%)

This TDP's financial plan begins with these costs and funding sources and those in the currently proposed FY 2010 system budget as the "base year" values for the estimation of future year operating costs and revenue streams. Annual operation and maintenance (O&M) costs during the TDP time period are projected to be $579,400 and grow to $639,700 in FY 2015. It is assumed that a two percent annual inflation rate is applied to these "base year" costs to estimate the annual O&M costs over the TDP time period.

Federal operating assistance funds are assumed to remain at essentially a constant amount during the TDP time period. In FY 2010, the presently budgeted federal operating assistance fund level of $262,700 is projected to cover approximately 44 percent of STAR Transit's total annual O&M costs. This percentage is projected to decrease each year during the TDP time period since the total O&M costs are assumed to increase at a rate of two percent each year due to inflationary factors, and the amount of annual Federal operating assistance funds are assumed to remain at the FY 2010 levels.

The Virginia Department of Rail and Public Transportation (DRPT) has identified $93,400 in state operating assistance for STAR Transit in FY 2010 in its Transportation Improvement Program. The DRPT's TIP reflects a 19 percent growth in state operating allocations from its Mass Transit

Trust Fund on a statewide basis between FY 2010 and FY 2015. Based on the information from DRPT, little growth in the allocation of state operating assistance funding to STAR Transit has been assumed beyond the FY 2010 budgeted amount over the duration of this TDP cycle. The percentage increases in the anticipated annual state operating assistance (over the previous year) are 1.77% in FY 2011, 2.90% in FY 2012, 3.50% in FY 2013, 3.16% in FY 2014, and 3.16% in FY 2015. The annual state operating funding level will be increased by these percentage increases from the FY 2010 funding level (approximately $93,400) through the TDP time period.

State formula assistance grants for public transportation operating expenses are awarded on the basis of the total annual amount of state funds available expressed as a percentage of the total annual amount of transit operating expenses, subject to a cap of 95% of eligible expenditures. Eligible expenditures are defined as costs of administration, fuel, tires, and maintenance parts and supplies (payroll costs of mechanics and drivers are excluded). Projections for state operating assistance, as identified in the TDP financial plan, have been provided for planning purposes and may fluctuate up or down based on the aforementioned parameters.

State capital program grants from the Mass Transit Trust Funds (MTTF) are awarded to all public transportation capital projects deemed to be eligible, reasonable, and appropriate at a uniform level of state participation. The goal is to reach the maximum state share of capital expenses of 95%, but there have not been sufficient funds to support transit capital projects at this level since the Mass Transit Trust Fund was created in 1986. This level of participation or "state share" of capital project expenses is calculated by dividing the amount of state funds available for capital projects each year by the amount needed to support the non-federal share of all eligible transit capital projects for the year. Beginning in FY 2008, additional capital funds from the Transportation Capital Projects bond proceeds authorized under Chapter 896 of the 2007 Acts of Assembly have been available annually at a maximum state matching share of 80% in the Transit Capital Fund.

The estimated annual farebox for STAR Transit is assumed only to increase nominally with the growth associated with the general population growth of the area, an expected annual increase of 0.53 percent per year, as well as no anticipated change in the annual revenue vehicle-hours of operation to be provided across the STAR Transit service area.

Table 7-1 presents the TDP financial plan for the funding of the annual O&M costs through the TDP six-year time period. Using the assumptions identified above of the level of Federal and State operating assistance funding, the required local government funding requirements are anticipated to steadily increase through the TDP time period, from approximately $169,300 in FY 2010 to approximately $213,900 in FY 2015. As a percentage of the total estimated system operating costs, the local government share is anticipated to increase from approximately 29 percent of the total annual cost in FY 2010 to just over 33 percent of the total annual cost in FY 2015.

Table 7-1: Projected Annual Operating Cost and Funding Sources

	2010	2011	2012	2013	2014	2015
Operating Statistics						
Annual Revenue Hours	14,300	14,300	14,300	14,300	14,300	14,300
Annual Operating Costs	$579,400	$591,000	$602,800	$614,900	$627,200	$639,700
Anticipated Funding Sources						
Federal	$262,700	$262,700	$262,700	$262,700	$262,700	$262,700
State	$93,400	$95,100	$97,800	$101,200	$104,400	$107,700
Farebox	$53,900	$54,200	$54,500	$54,800	$55,100	$55,400
Farebox Recovery Ratio	9.3%	9.2%	9.0%	8.9%	8.8%	8.7%
Local Gov't Funding Required	$169,300	$179,000	$187,800	$196,100	$204,900	$213,900
Local Gov't Funding Percentage	29.2%	30.3%	31.2%	31.9%	32.7%	33.4%

Notes:
1. Annual Revenue Hours for FY2009 provided by STAR Transit and assumed to be constant through the life of the TDP period.
2. FY2010 Operating Cost obtained from DRPT FY2010 district budget data. Beginning in FY2011, the Annual Operating Cost calculated assuming a 2.0%/year inflation rate.
3. Federal Operating Assistance reflects estimated FTA Section 5311 and FTA 5316 funds; assumed to remain flat at FY2010 levels.
4. FY2010 State Operating Assistance obtained from DRPT FY2010 district budget data. Per DRPT, the increases in State Operating Assistance (over the previous year) are 1.77% in FY 2011, 2.90% in FY 2012, 3.50% in FY 2013, 3.16% in FY 2014, and 3.16% in FY 2015.
5. FY2010 Contract Revenue Total obtained from DRPT FY2010 district budget data and assumed to be constant through the life of the TDP period.

7.2 Bus Purchase Cost and Funding Sources

As noted in previous chapters, given the current fiscal situation, service expansion is not likely and the STAR Transit operations would maintain its current system's operation. In this case, the bus purchases during the TDP time period would be for bus replacements.

Assuming that the historically observed cycle of one to two vehicle replacements per year for START Transit is continued, the remaining bus purchases have been assumed to be funded through FTA's Section 5311 Program. This assumption anticipates a continuation of the traditional shared allocation of costs with 80 percent funding provided by the Federal Government, 10 percent funding by the State Government, and 10 percent funding by the Local Governments. For the bus purchase prices, a two percent annual inflation rate is applied. **Table 7-2** presents the suggested TDP financial plan for funding bus purchases through the TDP six-year time period.

Table 7-2: TDP Financial Plan for Funding Bus Purchases

	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015
Bus Replacements	2	2	2	1	2	2	2
Bus Replacement Costs	$113,000	$115,300	$117,600	$60,000	$122,300	$124,800	$127,300
Anticipated Funding Sources							
Federal - FTA 5311 Program	$90,400	$92,240	$94,080	$48,000	$97,840	$99,840	$101,840
State	$11,300	$11,530	$11,760	$6,000	$12,230	$12,480	$12,730
Local Government Funding Required	$11,300	$11,530	$11,760	$6,000	$12,230	$12,480	$12,730

Notes:
1. Bus replacements by year identified in Table 4.4 of TDP.
2. Bus replacement costs assumed to be $56,500 in current year (FY2009) dollars.
3. Table reflects 2.0 percent per year inflation in bus acquisition costs.
4. Funding sources assumes 80 percent funding through FTA Section 5311 program, 10 percent funding from State, and remaining 10 percent from local governments.
5. All cost in year of expenditure dollars.

STAR Transit management desires to expand transit services in the area. If strong local support is developed, then this may become a reality. Previous chapters presented three expansion services. In the case of the Ruby Demand-Response Route and Hampton Roads Services, new buses would need to be purchased as these services would run during the same hours as the existing services. The Saturday Services could utilize the buses used during the week; however, this service expansion would increase the annual miles and therefore increase the rate of vehicle replacements. **Table 7-3** presents the capital cost of the Expansion Buses. Funding sources are not yet identified.

Table 7-3: Capital Cost of Expansion Buses

Proposed Service	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015
Ruby Route			$58,800	$60,000		$62,400	$63,600
Saturday Services				$60,000			$63,600
Hampton Roads Connector							

Notes:
1. Each Service would purchase one bus in the year that capital costs are shown.
2. Bus replacement costs assumed to be $56,500 in current year (FY2009) dollars.
3. Table reflects 2.0 percent per year inflation in bus acquisition costs.
4. Hampton Roads Service would not begin until FY2016; capital cost would be $64,900.

7.3 Facility Improvement Costs and Funding Sources

At this time, no funding mechanism has been identified for facility improvement projects identified in **Section 5.2**. As funding becomes available, a security system, office furniture and equipment, and shop equipment should be purchased for the new facility.

8.0 TDP MONITORING AND EVALUATION

Similar to any other multi-year duration planning document, the transit development plan (TDP) for a specific public transit system must be regularly monitored and evaluated in order to maintain its usefulness over time. The previous chapters of this TDP have presented a comprehensive evaluation of the STAR Transit System's service and cost characteristics. The key elements that have been addressed in this TDP effort include:

- The development of suggested goals, objectives, and general performance standards that can be used to help guide the further development of STAR Transit's services;
- A detailed evaluation of existing service characteristics, with a discussion of the system's current strengths and weaknesses;
- A peer agency review that compares the recent service and financial characteristics of STAR Transit to those of other similar rural public transportation systems operating in the Commonwealth of Virginia;
- An on-board ridership survey that identified the primary socioeconomic characteristics of the current riders, their satisfaction with the existing services, and potential service improvements that are desired by the riders;
- A description of potential service and facility improvements for consideration in the TDP;
- A series of recommended service and facility improvements for inclusion in the TDP, with the year of the improvements identified as appropriate; and
- A discussion of the funding requirements and potential funding sources for the capital and operating costs associated with the recommended service and facility improvements.

This TDP represents an initial step in the future service and facility improvements for the STAR Transit System. In order to ensure the relevance of the TDP over time, it will be important for STAR Transit to regularly coordinate with other transportation and land use planning efforts across its multijurisdictional service area, to continue to monitor service performance, and to provide DRPT with annual updates regarding implementation of the ultimately adopted TDP service and facility improvements program.

8.1 Coordination with Other Plans and Programs

The completion of this TDP requires that it be coordinated with a variety of other ongoing land use and transportation planning efforts at the county, regional, and statewide levels. For example, the public transit-oriented goals and objectives suggested by this TDP should be reviewed and incorporated as appropriate into the transportation-related goals and objectives sections of the county comprehensive plans for Accomack and Northampton Counties that are currently being served by STAR Transit. The multijurisdictional long-range regional transportation plans developed by the Accomack-Northampton Planning District Commission in

cooperation with the Virginia Department of Transportation (VDOT) and the Department of Rail and Public Transportation (DRPT) should also include appropriate references to the STAR Transit TDP.

At the statewide level, the TDP recommendations for STAR Transit should be incorporated into the public transportation elements of the DRPT developed six-year state transportation improvement program (SYTIP) and the statewide multimodal long-range transportation plan VTrans2035.

8.2 Service Performance Monitoring

In prior chapters of this TDP, a group of specific system-wide performance measures and operating guidelines have been identified for application to a rural public transit system such as STAR Transit. The adoption of these operating guidelines will allow for the system's management to regularly monitor the performance of STAR Transit to help ensure that existing performance characteristics do not degrade over time.

Where changes in performance are identified, appropriate corrective measures should be investigated. These corrective actions might involve route realignment adjustments for local fixed route services, modifications to service frequency (headway), and/or span of service adjustments. STAR Transit presently has a basic performance monitoring program in place, with an emphasis on tracking ridership, service-hours, service-miles, and operating costs and revenues on a monthly basis at the route specific and system-wide levels. These reports are presented monthly by the system manager to the members of the STAR Transit Board of Directors. As the system continues to grow and develop, this process should be expanded as necessary.

An important element of this performance monitoring process should be a regularly scheduled update of the on-board ridership survey conducted as part of this TDP process. In order to comply with current DRPT guidelines, a new on-board survey should be undertaken at least once during each 6-year TDP cycle. With the initial system-wide survey being conducted in the spring of 2009, the next such survey should be conducted no later than during the spring of 2015.

8.3 Annual TDP Monitoring

The current TDP guidelines issued by DRPT require the submittal of an annual update letter that describes the progress being taken towards implementing the TDP's recommendations and any significant changes to the currently adopted TDP. These changes should include, but not be limited to, system expansions or reductions, new services or facilities being planned or implemented, organizational/governance changes, changes to the current fare structure or other actions. The recommended contents of this "TDP Update" letter include the following:

- A summary of ridership trends at the system and service area/local route level for each of the previous 12 months.

- A description of those TDP goals and objectives that have been advanced over the previous 12 months.

- A description of any service and facility improvements that have been implemented in the previous 12 months, including the identification of those that were identified in this TDP.

- An update to the TDP's list of recommended service and facility improvements. This should specifically identify those service or facility improvements that are being shifted to a new year, being eliminated, and/or are being added. This update of recommended improvements should be extended one more fiscal year into the future in order to maintain a six-year TDP planning period.

- A summary description of current fiscal year capital and operating costs and the associated federal, state, and local funding sources.

- Updates to the capital and operating financial plan tables presented in Chapter 7 of this TDP. These tables should be extended one more fiscal year into the future in order to maintain a six-year TDP planning period.

APPENDIX C.
FLEET INVENTORY
From DRPT's On-Line Grant Application (OLGA) System

STAR Transit Inventory Vehicles Data

Grantee	FTA Code	VIN	Number of Passengers	Model Year	Description	Engine Type	Purchase Date	Purchased New?	Purchase Price	Wheelchair Accessible?	Total Mileage	Primary Route Type	Average Hours operated per week	Average Miles Traveled per week	Location of Item	Comments
STAR Transit	11.12.15 - Vans	1FDXE45P35HB19971	18	2005	# 11 - Ford/supreme (BOC)	No. 2 Grade Diesel Fuel	9/20/2005	Yes	53659	Yes	112000		0	0	Accomack County	STAR TRANSIT
STAR Transit	11.12.15 - Vans	1FDWE35P56DA21006	14	2006	# 14 - Ford/supreme (BOC)	No. 2 Grade Diesel Fuel	6/7/2006	Yes	41352	Yes	96000		0	0	Accomack County	STAR TRANSIT
STAR Transit	11.12.15 - Vans	1FDWE35P76DA21007	14	2006	# 12 - Ford/supreme (BOC)	No. 2 Grade Diesel Fuel	4/12/2006	Yes	41352	Yes	93000		0	0	Accomack County	STAR TRANSIT
STAR Transit	11.12.15 - Vans	1FDXE45PX6DB26246	15	2006	# 16 - Ford/supreme (BOC)	No. 2 Grade Diesel Fuel	1/26/2007	Yes	43678	Yes	53000		0	0	Accomack County	STAR TRANSIT
STAR Transit	11.12.15 - Vans	1FDXE4516DB26247	15	2006	# 17 - Ford/supreme (BOC)	No. 2 Grade Diesel Fuel	1/26/2007	Yes	43678	Yes	60000		0	0	Accomack County	STAR TRANSIT
STAR Transit	11.12.15 - Vans	1FD4E45P38DA40024	15	2008	# 18 - Ford/supreme (BOC)	No. 2 Grade Diesel Fuel	1/26/2007	Yes	47104	Yes	1044		0	0	Accomack County	STAR TRANSIT
STAR Transit	11.12.15 - Vans	1FD4E45P58DA40025	15	2008	# 19 - Ford/supreme (BOC)	No. 2 Grade Diesel Fuel	3/11/2008	Yes	47104	Yes	500		0	0	Accomack County	STAR TRANSIT
STAR Transit	11.12.04 - Bus < 30 FT	1FDXE45P05HA56599	23	2005	BOC Transit Bus	Not Available	3/2/2005	Yes	53285	Yes	96500		50	0	Northampton County	
STAR Transit	11.12.04 - Bus < 30 FT	1FDXE45P16DB26247	15	2006	15 Passenger BOC Bus with Lift	Not Available	1/26/2007	Yes	43678	Yes	48400		54	0	Accomack County	
STAR Transit	11.12.16 - Sedan / Station Wagon	1FTYR10D979A42461	2	2007	Ford Ranger Pick-Up	Not Available	10/16/2006	Yes	12465	No	8900		30	0	Accomack County	
STAR Transit	11.12.15 - Vans	1FDWE35F03HA42146	14	2003	# 6 - Ford/supreme (BOC)	No. 2 Grade Diesel Fuel	1/15/2003	Yes	44595	Yes	44595		0	0	Accomack County	STAR TRANSIT
STAR Transit	11.12.15 - Vans	1C4GP45R84B564742	8	2004	# 8 - Crysler	Gasoline	10/28/2003	Yes	19577	No	60000		0	0	Accomack County	STAR TRANSIT
STAR Transit	11.12.15 - Vans	1FDXE45PO5HA56599	23	2005	# 10 - Ford/supreme (BOC)	No. 2 Grade Diesel Fuel	3/2/2005	Yes	53285	Yes	109000		0	0	Accomack County	STAR TRANSIT

* Data is from the OLGA system. All analysis was conducted using the December 2008 data.

APPENDIX D.
OPERATING AND CAPITAL EXPENSES AND REVENUES
A 3-Year Retrospective

HISTORICAL OPERATING STATISTICS. FY2006-FY2008
STAR Transit

Operating Statistics	FY2006	FY2007	FY2008
Annual Passengers	37,025	38,354	40,999
Annual Operating Costs	$ 391,620	$ 448,431	$ 492,546
Annual Revenue Miles	315,959	342,765	341,564
Annual Revenue Hours	14,125	15,245	14,250
Passengers per Revenue Mile	0.12	0.11	0.12
Passengers per Revenue Hour	2.62	2.52	2.88
Cost per Passenger	$10.58	$11.69	$12.01
Cost per Revenue Mile	$1.24	$1.31	$1.44
Cost per Revenue Hour	$27.73	$29.41	$34.56

System Revenues and Operating Assistance	2006	2007	2008
Passenger Fares	$ 48,690	$ 52,986	$ 53,925
Contract Revenues	$ -	$ -	$ -
Local Operating Assistance	$ 90,889	$ 98,918	$ 145,411
State Operating Assistance	$ 75,190	$ 77,128	$ 73,899
Federal Operating Assistance	$ 167,771	$ 187,360	$ 219,311
Totals	$ 382,540	$ 416,392	$ 492,546
Fares as Pct. Of Opns Cost	12.4%	11.8%	10.9%
Net Operating Cost	$ 333,850	$ 363,406	$ 438,621
Pct. Oper Assist by Source			
Local	27.2%	27.2%	33.2%
State	22.5%	21.2%	16.8%
Federal	50.3%	51.6%	50.0%
Totals	100.0%	100.0%	100.0%

APPENDIX E.
TRANSIT RIDER ON-BOARD SURVEY RESULTS

E.1 On-Board Survey Process

A comprehensive on-board passenger survey to collect the information on the demographic and travel characteristics of current riders was conducted for STAR Transit in February of 2009. The total number of on-board surveys returned by passengers on the STAR Transit demand-response and fixed-route services was 33 and 50, respectively. The total number of surveys distributed was not reported by the system so a return rate could not be calculated.

The survey included four basic groups of questions dealing with: rider's demographic information, specific trip information, a rating by the passengers of the current day service being provided, and passenger suggestions as to the importance of future service improvement needs. The summary results were used for service evaluation.

A copy of the survey questionnaire is presented in **Figure E-1**. The results of the on-board ridership survey are presented in the tables and figures below.

Figure E-1: On-Board Survey Questionnaire of STAR Transit System

Date.....*Route* _____ *Approx. Boarding Time* _____ *Survey No.:*_____

Dear Rider: STAR Transit is presently evaluating existing and future transit service needs. Please take a minute and fill out this survey regarding your opinions of STAR Transit. When finished please return the survey to the bus driver or mail to: **STAR Transit, P.O. Box 126, Parksley, Virginia 23421** *Thank you for your help.*

About You

1. **I am:** ☐ Male ☐ Female

2. **My age is:**
   ☐ 19 or under ☐ 30-39 ☐ 50-59
   ☐ 20-29 ☐ 40-49 ☐ 60 or older

3. **My race is primarily:**
   ☐ Caucasian ☐ Hispanic
   ☐ African-American ☐ Other

4. **I have completed:**
   ☐ Did not graduate from High School
   ☐ High School graduate/GED
   ☐ Some College
   ☐ College degree or higher

5. **My home's total annual income is:**
   ☐ Under $10,000 ☐ $30,000-$40,000
   ☐ $10,000-$20,000 ☐ $40,000-$50,000
   ☐ $20,000-$30,000 ☐ Over $50,000

6. **How often do you ride STAR Transit?**
   ☐ Less than once a month
   ☐ Once or twice a month
   ☐ 1 day a week
   ☐ 2-3 days a week
   ☐ 4 or more days a week

7. **How often do you ride the STAR Transit Door-to-Door service?**
   ☐ Never have used the service
   ☐ Less than once a month
   ☐ Once or twice a month
   ☐ More than twice a month
   ☐ Once a week or more

About Your Trip Today

8. **Where did your current trip begin?**
   ☐ Your Home ☐ Medical/Dental
   ☐ Work ☐ Social/Recreational
   ☐ School/College ☐ Service Agency
   ☐ Shopping
   ☐ Other _____

9. **Where was that located? (Town/County)**
   Address, Major Intersection or Nearby Landmark
   (shopping center name, hospital, school name, etc)
   _____

10. **How did you get to the bus stop?**
    ☐ Walk ☐ Bicycle
    ☐ Drove car ☐ Other _____

11. **Where are you going now?**
    ☐ Your Home ☐ Medical/Dental
    ☐ Work ☐ Social/Recreational
    ☐ School/College ☐ Service Agency
    ☐ Shopping
    ☐ Other _____

12. **Where is that located? (Town/County)**
    Address, Major Intersection or Nearby Landmark
    (shopping center name, hospital, school name, etc)
    _____

13. **Why did you ride the bus today?**
    ☐ I don't have a car ☐ Car not available
    ☐ Prefer to ride bus ☐ To save time
    ☐ To save money
    ☐ Have a Disability/Unable to Drive
    ☐ Other _____

Rate STAR Transit's Service

14. **Please rate the following characteristics of STAR Transit's service:**	Very Good	Good	Okay	Poor	Very Poor	Not Sure
a. Frequency of bus service	☐	☐	☐	☐	☐	☐
b. Areas that are served by bus routes	☐	☐	☐	☐	☐	☐
c. Bus on-time performance	☐	☐	☐	☐	☐	☐
d. Hours of bus service	☐	☐	☐	☐	☐	☐
e. Availability of schedules & route information	☐	☐	☐	☐	☐	☐
f. Cost of the bus fare	☐	☐	☐	☐	☐	☐
g. Sense of security on buses & at stops	☐	☐	☐	☐	☐	☐
h. Cleanliness of buses & bus stop areas	☐	☐	☐	☐	☐	☐
i. Courtesy/friendliness of bus drivers	☐	☐	☐	☐	☐	☐
j. OVERALL SERVICE	☐	☐	☐	☐	☐	☐

Identify Future Service Improvement Needs

14. **What service improvements would you like to see over the next several years?**	Very Important	Somewhat Important	Not Important	Not Sure
a. More frequent bus service	☐	☐	☐	☐
b. More direct bus routing to destinations	☐	☐	☐	☐
c. Late evening fixed route service	☐	☐	☐	☐
d. Expand service beyond current routes	☐	☐	☐	☐
e. Improve security on buses & at bus stops	☐	☐	☐	☐
f. Better bike racks on buses	☐	☐	☐	☐
g. Other: _____	☐	☐	☐	☐

Thank You for Your Time!

E.2 Responses to Survey Questions

E.2.1 DEMOGRAPHIC SURVEY INFORMATION – DEMAND-RESPONSE SERVICE

Table E-1 summarizes the passenger characteristics of the current STAR Transit demand-response ridership based upon the information contained in the returned surveys.

Table E-1: STAR Transit Passenger Characteristics (Demand-Response Service)

Gender	Number	Percent
Male	8	24.2%
Female	25	75.8%
Total Responding	33	100.0%
No Response	0	

Age	Number	Percent
19 or under	9	27.3%
20-29	12	36.4%
30-39	1	3.0%
40-49	7	21.2%
50-59	4	12.1%
60 or older	0	0.0%
Total Responding	33	100.0%
No Response	0	

Race	Number	Percent
Caucasian	8	24.2%
African-American	22	66.7%
Hispanic	0	0.0%
Other	3	9.1%
Total Responding	33	100.0%
No Response	0	

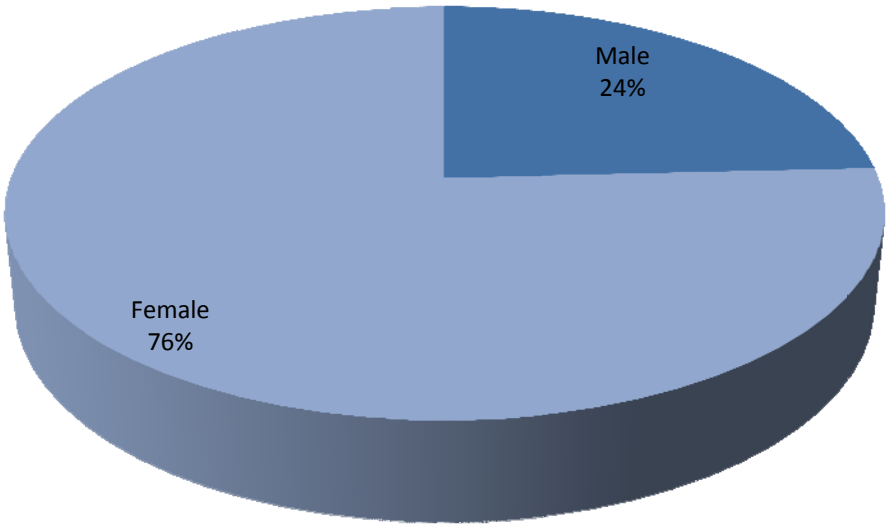
Educational Level	Number	Percent
Not High School Graduate	7	21.9%
High School Graduate / GED	22	68.8%
Some College	2	6.3%
College Degree or Higher	1	3.1%
Total Responding	32	100.0%
No Response	1	

Household Annual Income	Number	Percent
Under $10,000	16	51.6%
$10,000 - $20,000	10	32.3%
$20,000 - $30,000	4	12.9%
$30,000 - $40,000	1	3.2%
$40,000 - $50,000	0	0.0%
Over $50,000	0	0.0%
Total Responding	31	100.0%
No Response	2	

Frequency of Ridership	Number	Percent
Less than once a month	4	12.1%
Once or twice a month	5	15.2%
1 day a week	5	15.2%
2-3 days a week	8	24.2%
4 or more days a week	11	33.3%
Total Responding	33	100.0%
No Response	0	

Gender (Demand-Response Service)

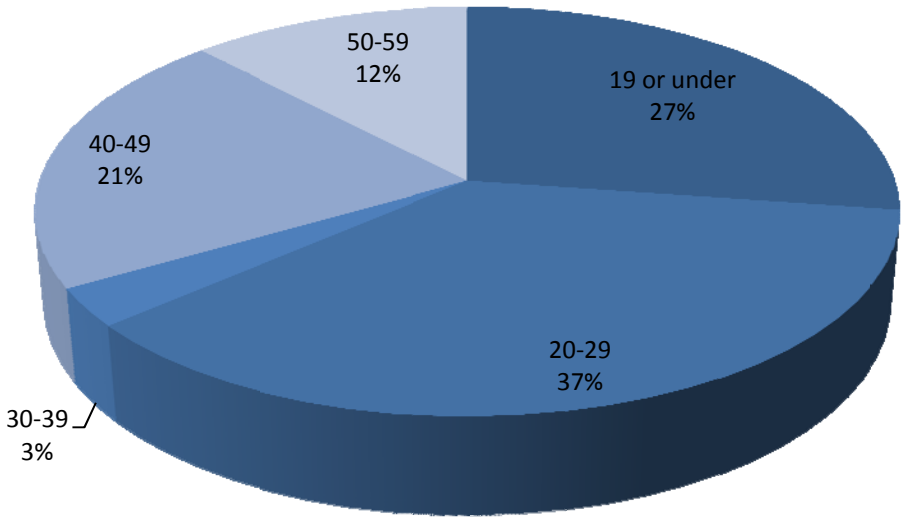
Figure E-2. Survey Results: Gender



As **Figure E-2** shows, female passengers responded at a rate of 76 percent, with male responses reported at approximately 24 percent.

Age (Demand-Response Service)

Figure E-3. Survey Results: Age

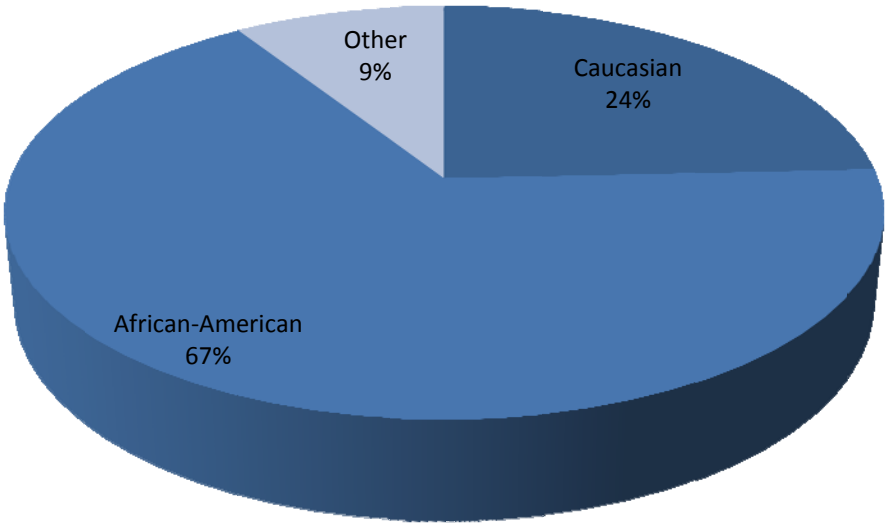


The passengers' ages are relatively well-distributed across each of the different ranges that were defined. Based on the ridership survey results, there is a slightly higher percentage in the age group of 20-29, about 37 percent on the demand-responsive service, followed by 19 or under at 27 percent.

These findings suggest that STAR Transit is providing basic mobility services to a broad cross-section of the service area population.

Race (Demand-Response Service)

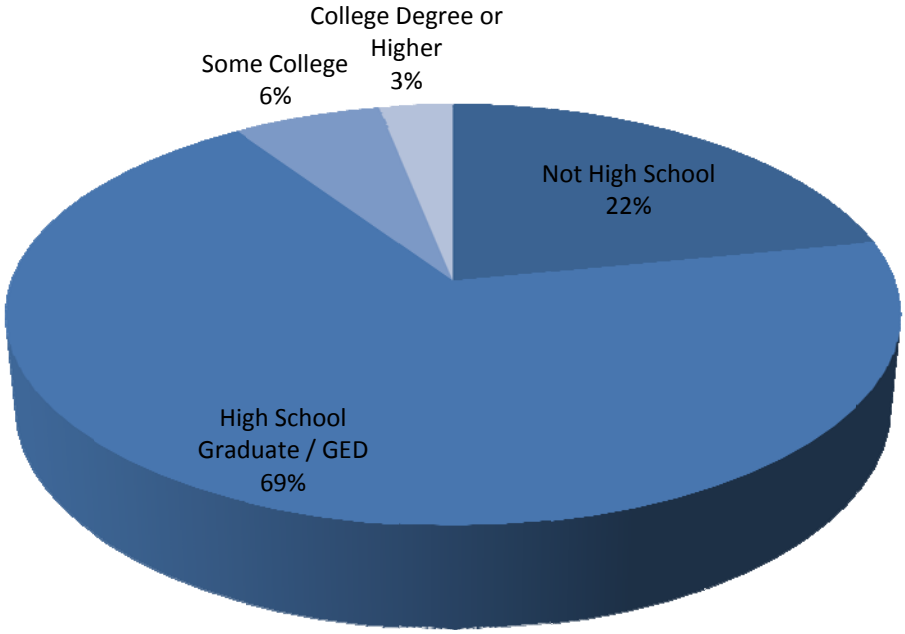
Figure E-4. Survey Results: Race



Per survey respondents, African-American and Caucasian are the top two races using STAR Transit service. The combined percentage of these two races is 91 percent. Other races represented the remaining 9 percent of the reported ridership.

Education Level (Demand-Response Service)

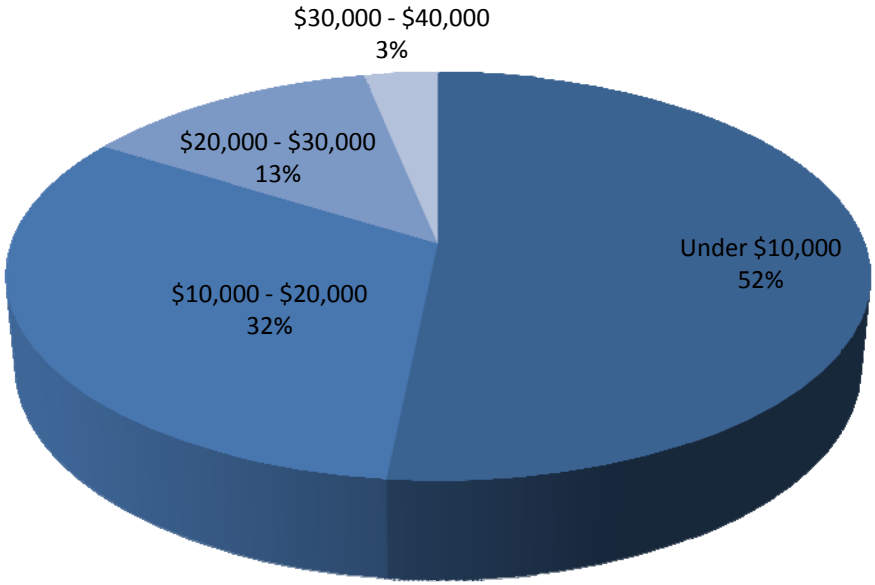
Figure E-5. Survey Results: Education Level



With respect to the reported education level, approximately 69 percent of the passengers indicated that they possessed a high school degree and 22 percent reported that they had not graduated from high school. Approximately 6 percent of the riders reported having attended some college, while 3 percent reported having earned at least a collegiate level bachelor's degree.

Annual Household Income (Demand-Response Service)

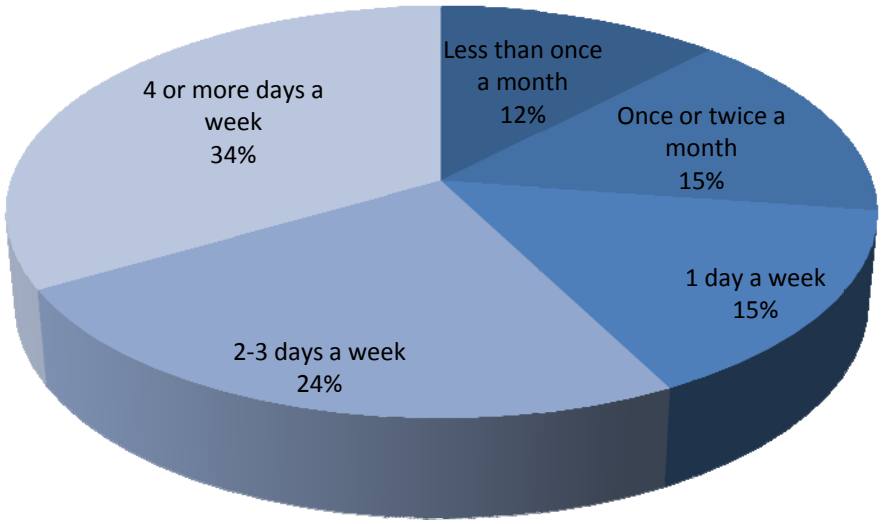
Figure E-6. Survey Results: Annual Household Income



Persons with low income are the major users of STAR Transit. A total of 84 percent of the total STAR Transit respondents reported less than $20,000 for their household annual income, with 52 percent of the passengers reporting a household income level of less than $10,000 per year. Approximately 13 percent of riders reported an annual income of between $20,000 and $30,000, while an additional 3 percent reported annual incomes between $30,000 and $40,000 per year.

Frequency of Ridership (Demand-Response Service)

Figure E-7. Survey Results: Frequency of Ridership



More than half of the riders that participated in this survey reported using STAR Transit services on a regular basis. A total of 34 percent of the riders reported a ridership frequency of 4 or more days a week, with an additional 24 percent reporting use of the system 2-3 days a week. Combining these two values indicates that approximately 58 percent of the total passengers that responded use STAR Transit services more than two days per week and can thus be classified as "regular" rather than occasional riders.

E.2.2 DEMOGRAPHIC SURVEY INFORMATION – FIXED-ROUTE SERVICES

Table E-2 summarizes the passenger characteristics of the current STAR Transit fixed-route ridership based upon the information contained in the returned surveys.

Table E-2: STAR Transit Passenger Characteristics (Fixed-Route Responses)

Gender	Number	Percent
Male	26	52.0%
Female	24	48.0%
Total Responding	50	100.0%
No Response	0	

Age	Number	Percent
19 or under	4	8.5%
20-29	12	25.5%
30-39	6	12.8%
40-49	8	17.0%
50-59	11	23.4%
60 or older	6	12.8%
Total Responding	47	100.0%
No Response	3	

Race	Number	Percent
Caucasian	11	22.9%
African-American	34	70.8%
Hispanic	0	0.0%
Other	3	6.3%
Total Responding	48	100.0%
No Response	2	

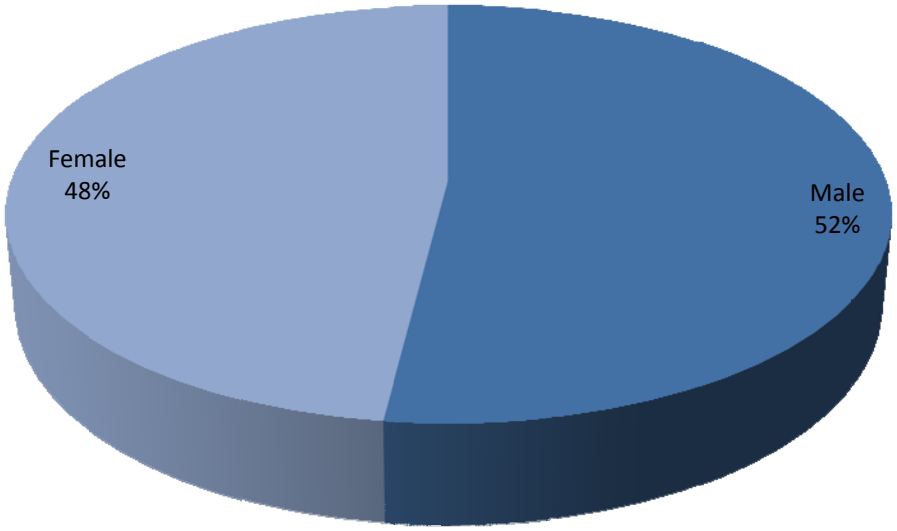
Educational Level	Number	Percent
Not High School Graduate	7	15.2%
High School Graduate / GED	24	52.2%
Some College	12	26.1%
College Degree or Higher	3	6.5%
Total Responding	46	100.0%
No Response	4	

Household Annual Income	Number	Percent
Under $10,000	24	52.2%
$10,000 - $20,000	13	28.3%
$20,000 - $30,000	3	6.5%
$30,000 - $40,000	2	4.3%
$40,000 - $50,000	0	0.0%
Over $50,000	4	8.7%
Total Responding	46	100.0%
No Response	4	

Frequency of Ridership	Number	Percent
Less than once a month	24	54.5%
Once or twice a month	6	13.6%
1 day a week	6	13.6%
2-3 days a week	1	2.3%
4 or more days a week	7	15.9%
Total Responding	44	100.0%
No Response	6	

Gender (Fixed-Route Service)

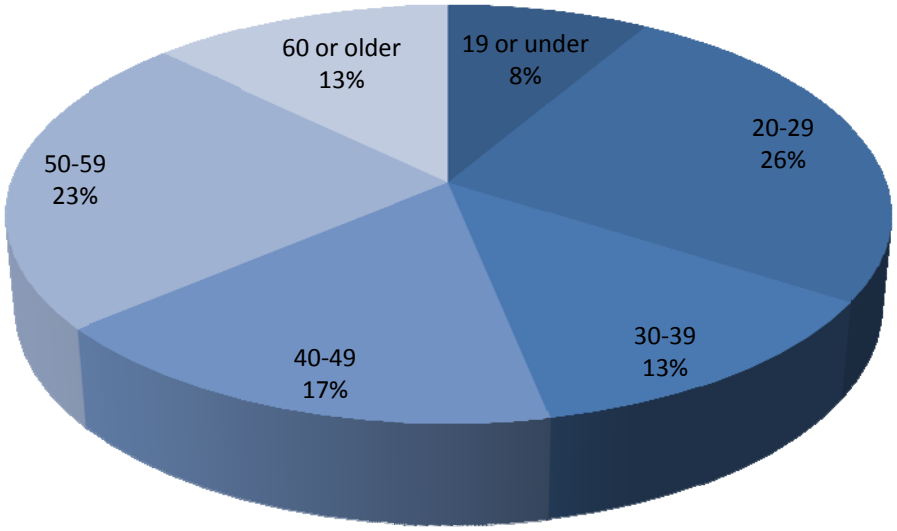
Figure E-8. Survey Results: Gender



As **Figure E-8** shows, female passengers responded at a rate of 48 percent, with male responses reported at approximately 52 percent.

Age (Fixed-Route Service)

Figure E-9. Survey Results: Age

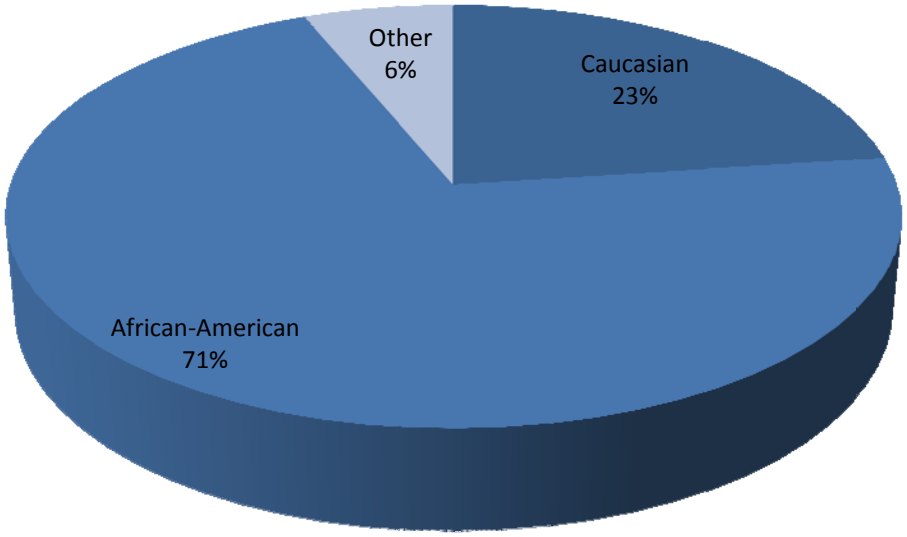


The passengers' ages are relatively well-distributed across each of the different ranges that were defined. Based on the ridership survey results, the highest group was 20-29 at 26 percent, with the lowest being 19 or under at 8 percent.

These findings suggest that STAR Transit is providing basic mobility services to a broad cross-section of the service area population.

Race (Fixed-Route Service)

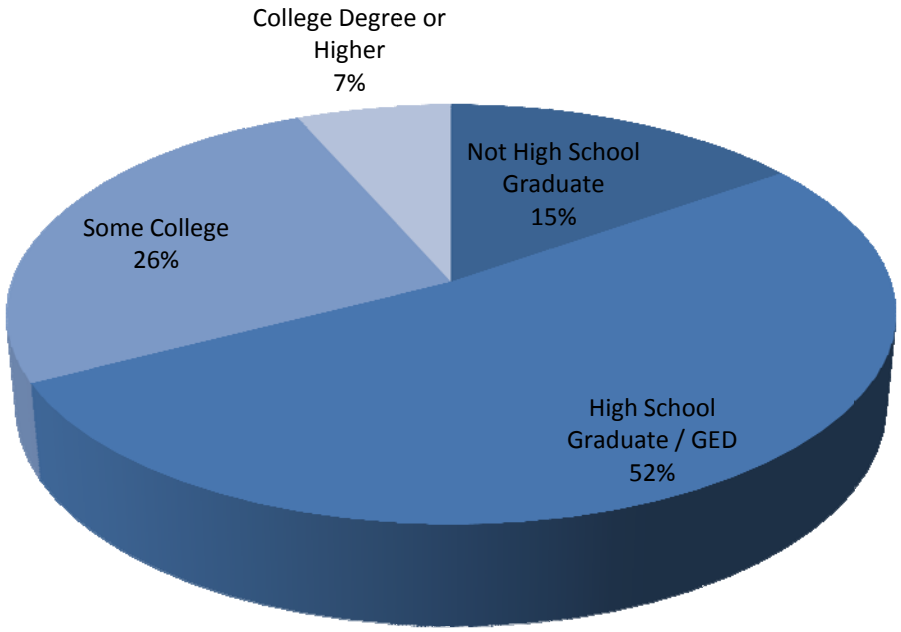
Figure E-10. Survey Results: Race



African-American and Caucasian are the top two races using STAR Transit service. The combined percentage of these two races is 94 percent. Other races represented the remaining 6 percent of the reported ridership.

Education Level (Fixed-Route Service)

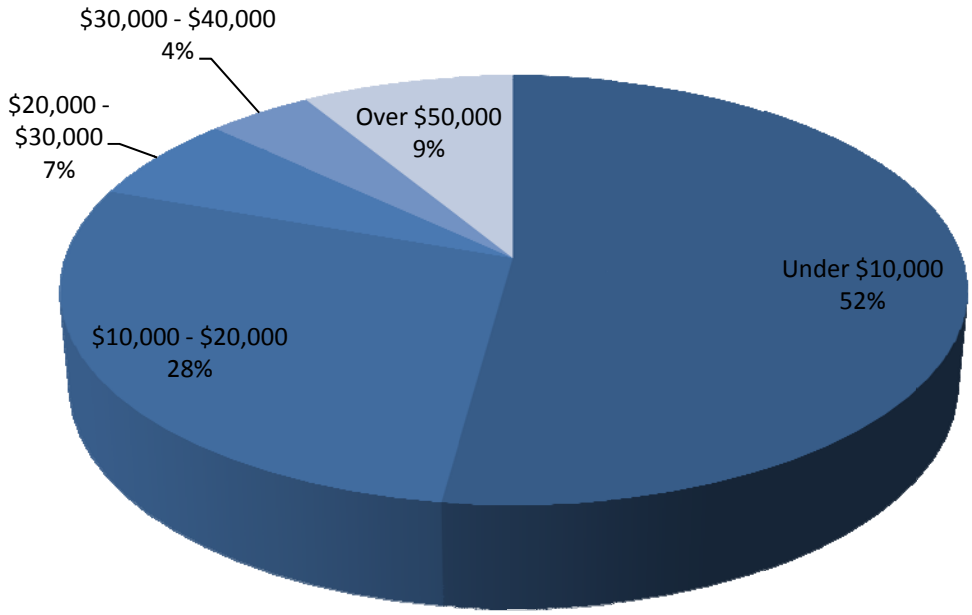
Figure E-11. Survey Results: Education Level



With respect to the reported education level, approximately 52 percent of the passengers indicated that they possessed a high school degree and 15 percent reported that they had not graduated from high school. Approximately 26 percent of the riders reported having attended some college, while 7 percent reported having earned at least a collegiate level bachelor's degree.

Annual Household Income (Fixed-Route Service)

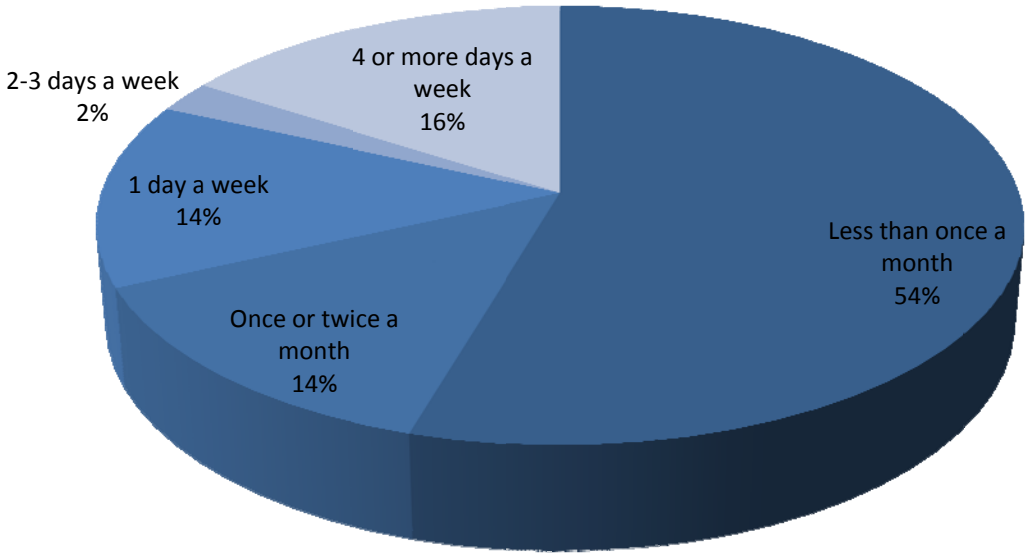
Figure E-12. Survey Results: Annual Household Income



Persons with low income are the major users of STAR Transit. A total of 80 percent of the total STAR Transit respondents reported less than $20,000 for their household annual income, with 52 percent of the passengers reporting a household income level of less than $10,000 per year. Approximately 7 percent of riders reported an annual income of between $20,000 and $30,000, while an additional 4 percent reported annual incomes between $30,000 and $40,000 per year. Approximately 9 percent reported an income over $50,000.

Frequency of Ridership (Fixed-Route Service)

Figure E-13. Survey Results: Frequency of Ridership



More than half of the riders that participated in this survey reported using STAR Transit services less than once a month. A total of 16 percent of the riders reported a ridership frequency of 4 or more days a week, with an additional 2 percent reporting use of the system 2-3 days a week.

E.2.3 TRIP-SPECIFIC SURVEY RESULTS – DEMAND-RESPONSE SERVICE

Table E-3 summarizes responses to the on-board survey questions related to the trip being made at the time of the administration of the demand-response survey.

Table E-3: STAR Transit "About Your Trip Today" (Demand-Service Responses)

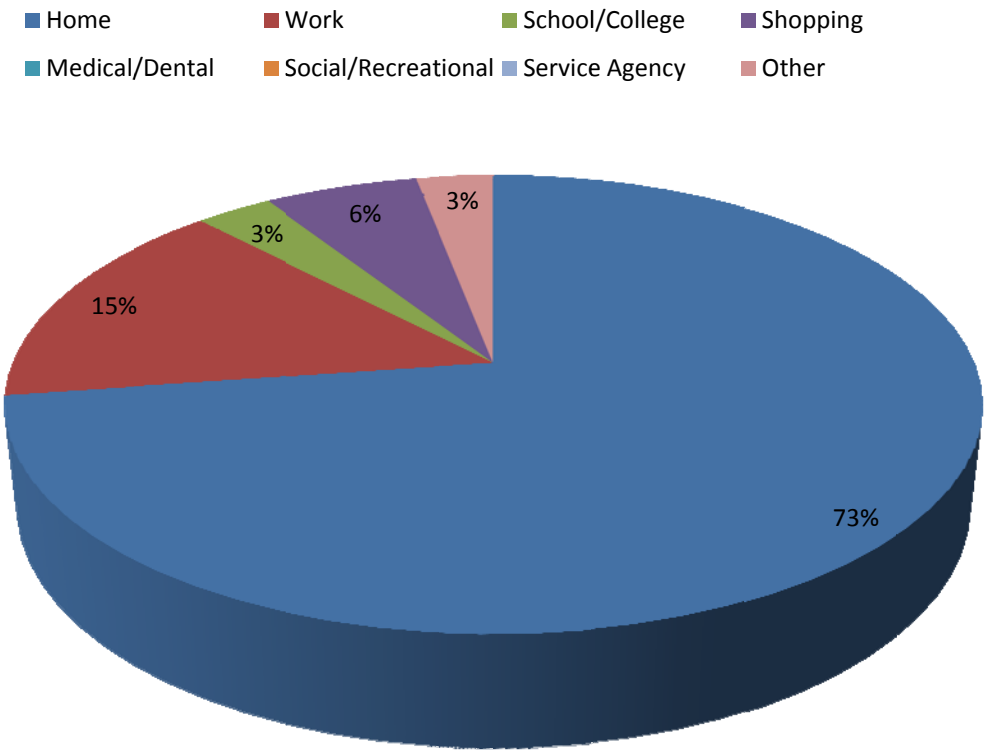
Trip Origin Type	Number	Percent
Home	24	72.7%
Work	5	15.2%
School/College	1	3.0%
Shopping	2	6.1%
Medical/Dental	0	0.0%
Social/Recreational	0	0.0%
Service Agency	0	0.0%
Other	1	3.0%
Total Responding	33	100.0%
No Response	0	

Trip Destination Type	Number	Percent
Home	9	27.3%
Work	7	21.2%
School/College	5	15.2%
Shopping	5	15.2%
Medical/Dental	2	6.1%
Social/Recreational	0	0.0%
Service Agency	1	3.0%
Other	4	12.1%
Total Responding	33	100.0%
No Response	0	

Reason for Riding	Number	Percent
Don't have a car	16	48.5%
Car not available	8	24.2%
Prefer to ride bus	1	3.0%
To save time	0	0.0%
To save money	3	9.1%
Disability/unable to drive	2	6.1%
Other	3	9.1%
Total Responding	33	100.0%
No Response	0	

Trip Origin (Demand-Response Service)

Figure E-14. Survey Results: Trip Origin

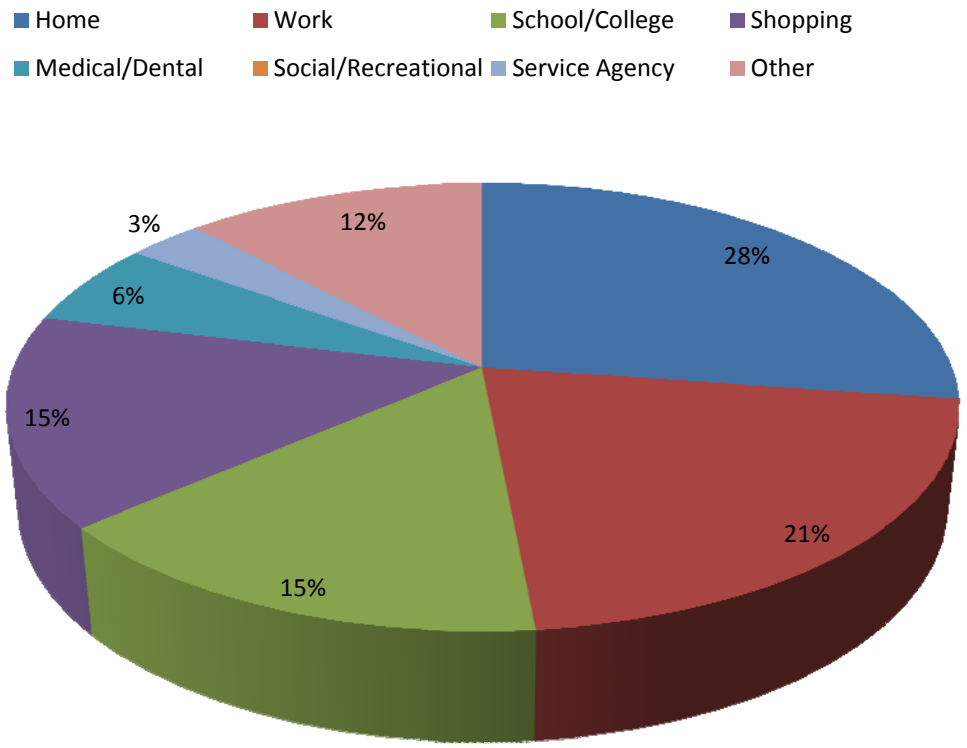


The vast majority (73 percent) of the passengers started their trips from their home. The remaining trip origins were distributed across a wide range of trip purposes.

Approximately 15 percent of the passengers reported starting their trips from their work location. The three next most frequent trip origins were cited as being "Shopping", "Other", and "School/College".

Trip Destination (Demand-Response Service)

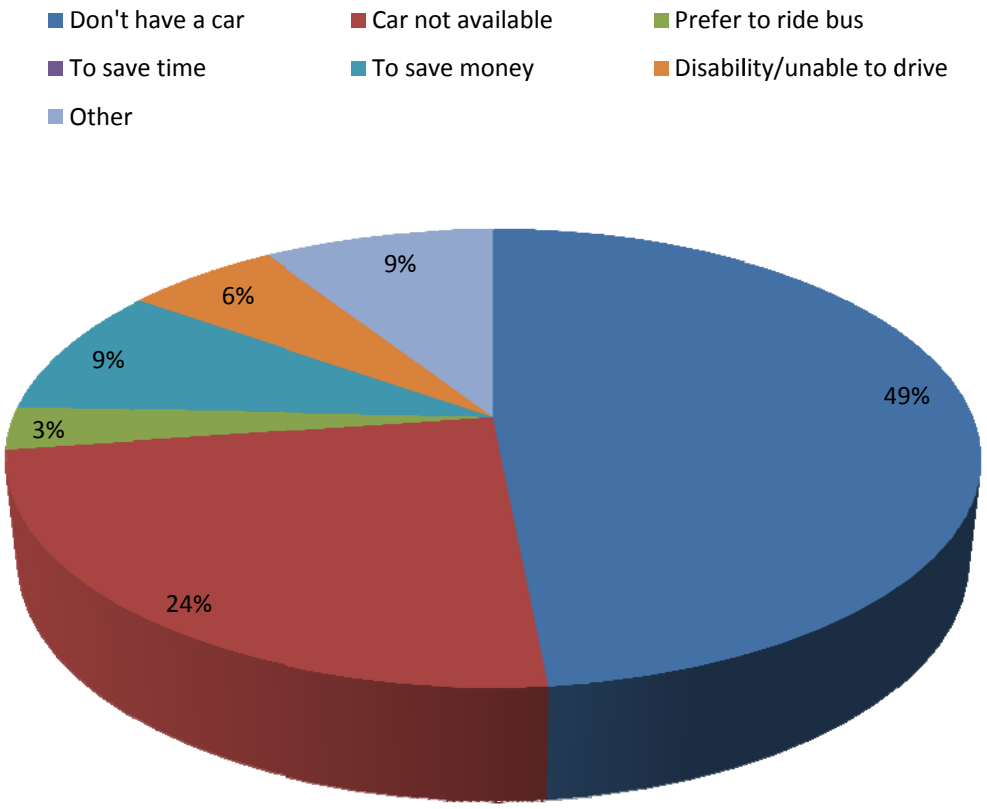
Figure E-15. Survey Results: Trip Destination



The top four trip destinations were noted as being "Home" at 28 percent, "Work" at 21, "School/College" at 15 percent, and "Shopping" at 15 percent. These four destinations account for 79 percent of the total trips. **These results demonstrate that the current ridership is using the STAR Transit system for basic mobility purposes between their homes and their workplace or other important destinations.**

Reason for Riding Transit (Demand-Response Service)

Figure E-16. Survey Results: Reason for Riding Transit



When asked to identify the principal reason why they were riding the bus, survey respondents most frequently indicated that they "Did Not Have a Car" (49 percent) or that a "Car Was Not Available" (24 percent). Combined, these two responses accounted for 73 percent of the reasons for using STAR Transit service. The factors of "Save Money" and "Other" were the next highest at 9 percent each.

These responses indicate that the current ridership can be classified as "transit captives"; that is, they have few if any other travel options available and if the current transit service was not provided, the subject trip would probably not be made. With a large percentage of the trips being made for work, shopping, or school/college purposes, the lack of basic mobility could result in significant negative effects on the ability of the study area population to obtain meaningful employment or educational services.

E.2.4 TRIP-SPECIFIC SURVEY RESULTS – FIXED-ROUTE SERVICE

Table E-4 summarizes responses to the on-board survey questions related to the trip being made at the time of the administration of the fixed-route service survey.

Table E-4: STAR Transit "About Your Trip Today" (Fixed Route Responses)

Trip Origin Type	Number	Percent
Home	30	62.5%
Work	5	10.4%
School/College	2	4.2%
Shopping	3	6.3%
Medical/Dental	0	0.0%
Social/Recreational	1	2.1%
Service Agency	0	0.0%
Other	7	14.6%
Total Responding	48	100.0%
No Response	2	

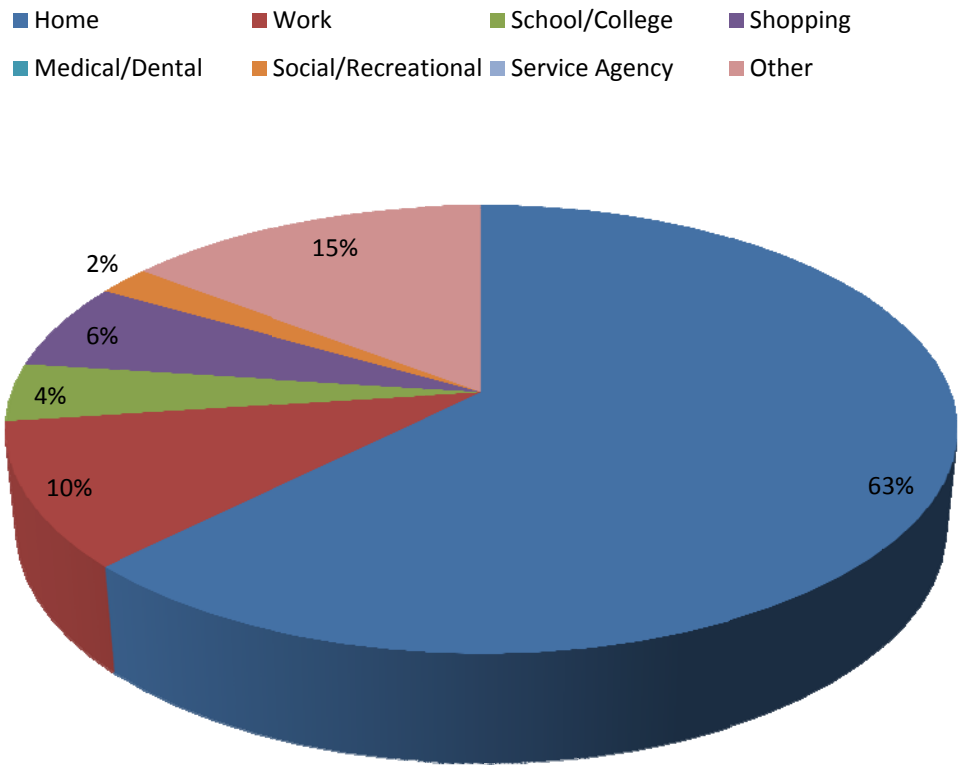
Trip Destination Type	Number	Percent
Home	13	27.1%
Work	15	31.3%
School/College	6	12.5%
Shopping	5	10.4%
Medical/Dental	0	0.0%
Social/Recreational	1	2.1%
Service Agency	0	0.0%
Other	8	16.7%
Total Responding	48	100.0%
No Response	2	

Bus Stop Access	Number	Percent
Walk	36	75.0%
Drove car	2	4.2%
Bicycle	1	2.1%
Other	9	18.8%
Total Responding	48	100.0%
No Response	2	

Reason for Riding	Number	Percent
Don't have a car	31	66.0%
Car not available	5	10.6%
Prefer to ride bus	4	8.5%
To save time	0	0.0%
To save money	4	8.5%
Disability/unable to drive	0	0.0%
Other	3	6.4%
Total Responding	47	100.0%
No Response	3	

Trip Origin (Fixed-Route Service)

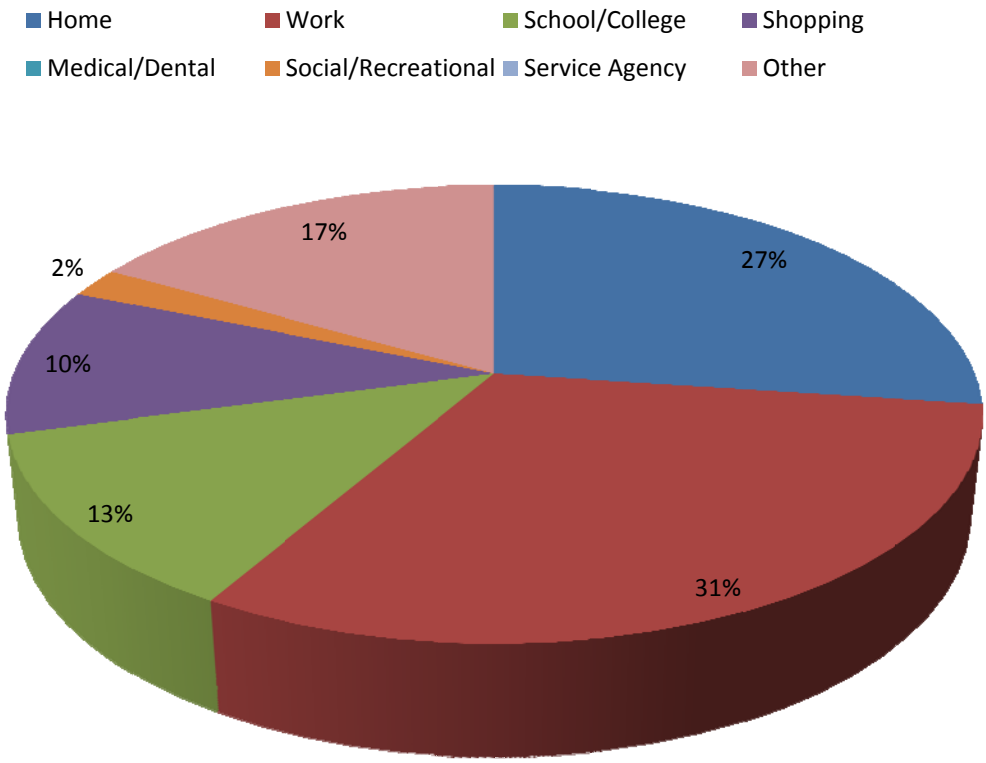
Figure E-17. Survey Results: Trip Origin



The vast majority (63 percent) of the passengers started their trips from their home. The remaining trip origins were distributed across a wide range of trip purposes.
"Other" had the next highest percentage at 15 percent. Approximately 10 percent of the passengers reported starting their trips from their work location. The three next most frequent trip origins were cited as being "Shopping", "School/College", and "Social/Recreational".

Trip Destination (Fixed-Route Service)

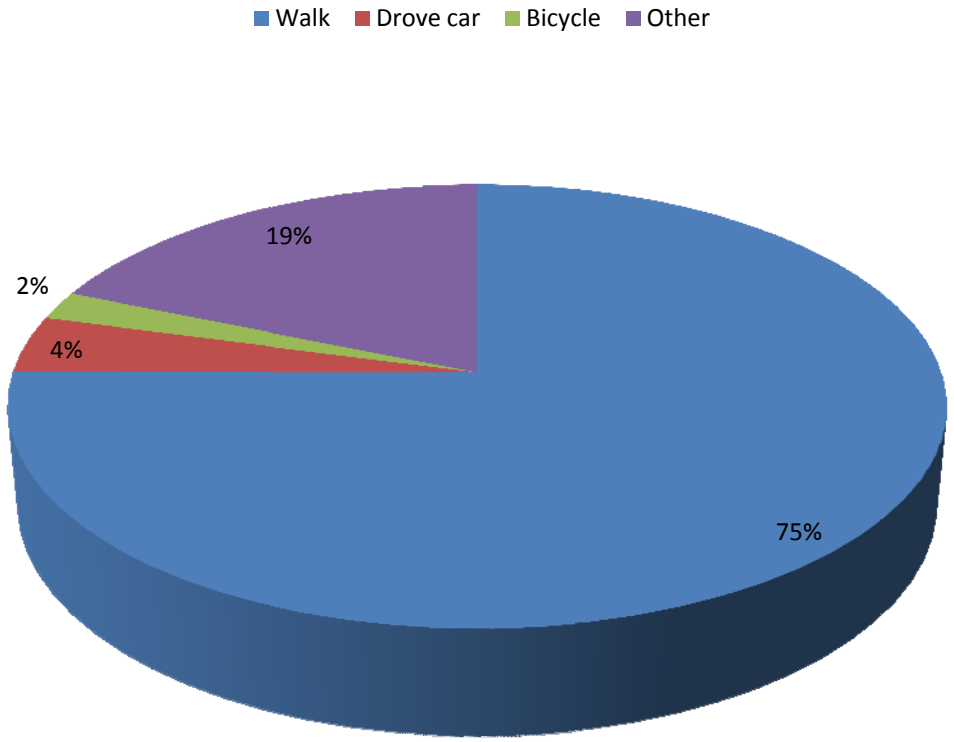
Figure E-18. Survey Results: Trip Destination



The top four trip destinations were noted as being ”Work” at 31 percent, “Home” at 27 percent, ”Other” at 17 percent, and ”School/College” at 13 percent. These four destinations account for 88 percent of the total trips. **These results demonstrate that the current ridership is using the STAR Transit system for basic mobility purposes between their homes and their workplace or other important destinations.**

Bus Stop Access (Fixed-Route Service)

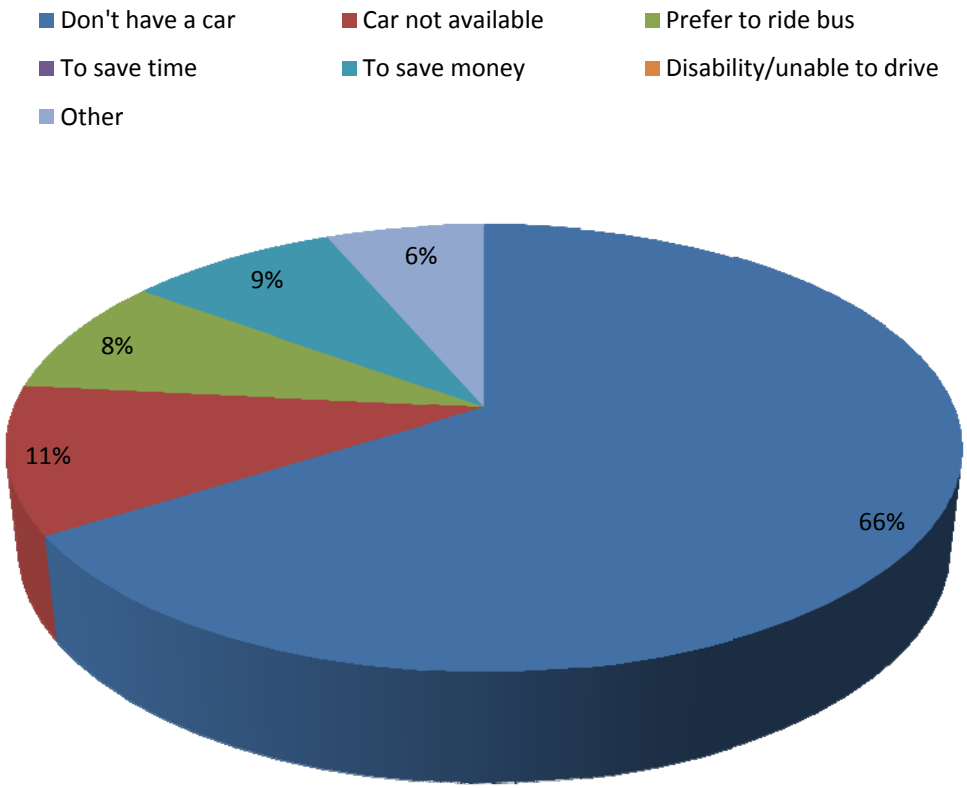
Figure E-19. Survey Results: Bus Stop Access



As shown in the figure above, most riders walk to the bus stop to access STAR Transit services, followed by "Other" at 19 percent. Very few riders drove or rode their bicycle to the bus stop.

Reason for Riding Transit (Fixed-Route Service)

Figure E-20. Survey Results: Reason for Riding Transit



When asked to identify the principal reason why they were riding the bus, survey respondents most frequently indicated that they "Did Not Have a Car" (66 percent) or that a "Car Was Not Available" (11 percent). Combined, these two responses accounted for 77 percent of the reasons for using Bay Transit service.

These responses indicate that the current ridership can be classified as "transit captives"; that is, they have few if any other travel options available and if the current transit service was not provided, the subject trip would probably not be made. With a large percentage of the trips being made for work, shopping, or school/college, the lack of basic mobility could result in significant negative effects on the ability of the study area population to obtain meaningful employment or educational services.

E.2.5 SERVICE RATINGS SURVEY RESULTS – DEMAND-RESPONSE SERVICE

Figure E-21 and **Table E-5** summarize the responses to the survey questions that were developed to obtain the view of the current riders as to quality of service currently being offered by STAR Transit. The service factors presented for rating were as follows:

- Reservation procedures
- Bus on-time performance
- Hours of bus service
- Cost of bus fare
- Sense of security on the buses
- Cleanliness of buses
- Courtesy/friendliness of bus drivers
- Overall service rating

For each of these eight evaluation measurements, those that responded to the survey provided combined ratings of "Very Good" or "Good" in the range of approximately 80-95 percent for almost every measurement. The two service factors with the lowest ratings were those for "Bus On-time Performance" and "Hours of Bus Service".

Figure E-21. Survey Results: Service Ratings (Demand-Response Service)

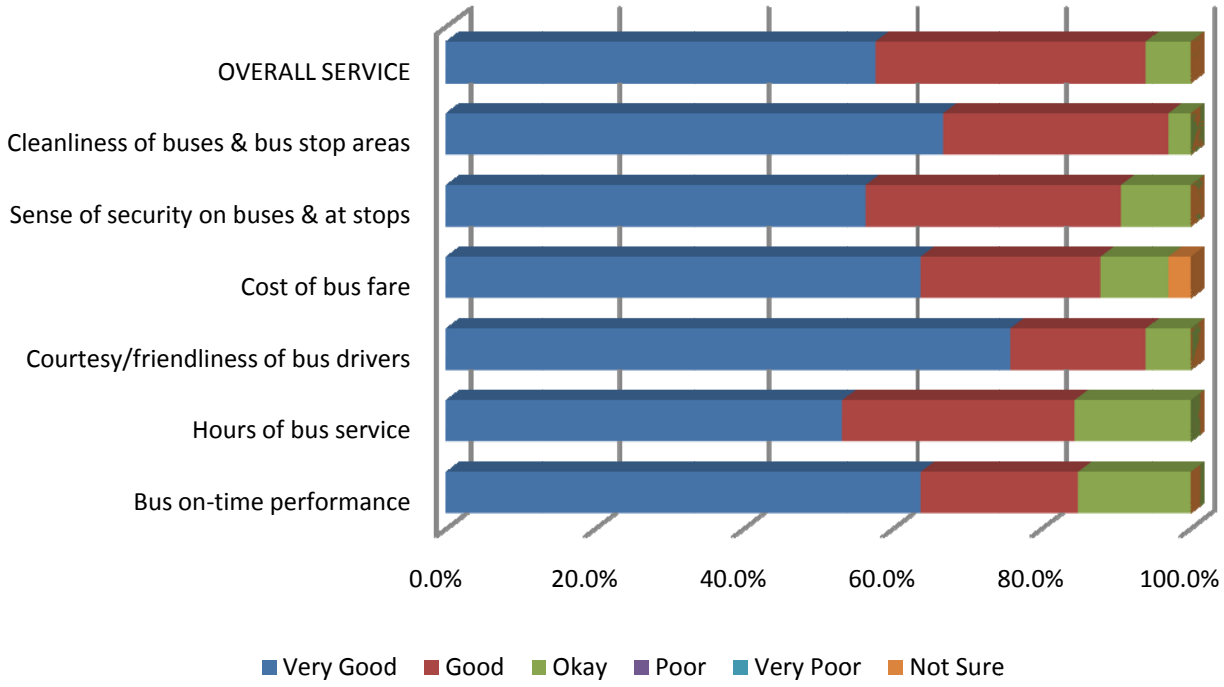


Table E-5: STAR Transit Service Rating (Demand-Service Responses)

Bus on-time performance	Number	Percent
Very Good	21	63.6%
Good	7	21.2%
Okay	5	15.2%
Poor	0	0.0%
Very Poor	0	0.0%
Not Sure	0	0.0%
Total Responding	33	100.0%
No Response	0	

Cost of bus fare	Number	Percent
Very Good	21	63.6%
Good	8	24.2%
Okay	3	9.1%
Poor	0	0.0%
Very Poor	0	0.0%
Not Sure	1	3.0%
Total Responding	33	100.0%
No Response	0	

Hours of bus service	Number	Percent
Very Good	17	53.1%
Good	10	31.3%
Okay	5	15.6%
Poor	0	0.0%
Very Poor	0	0.0%
Not Sure	0	0.0%
Total Responding	32	100.0%
No Response	1	

Sense of security on buses & at stops	Number	Percent
Very Good	18	56.3%
Good	11	34.4%
Okay	3	9.4%
Poor	0	0.0%
Very Poor	0	0.0%
Not Sure	0	0.0%
Total Responding	32	100.0%
No Response	1	

Courtesy/friendliness of bus drivers	Number	Percent
Very Good	25	75.8%
Good	6	18.2%
Okay	2	6.1%
Poor	0	0.0%
Very Poor	0	0.0%
Not Sure	0	0.0%
Total Responding	33	100.0%
No Response	0	

Cleanliness of buses & bus stop areas	Number	Percent
Very Good	22	66.7%
Good	10	30.3%
Okay	1	3.0%
Poor	0	0.0%
Very Poor	0	0.0%
Not Sure	0	0.0%
Total Responding	33	100.0%
No Response	0	

OVERALL SERVICE	Number	Percent
Very Good	19	57.6%
Good	12	36.4%
Okay	2	6.1%
Poor	0	0.0%
Very Poor	0	0.0%
Not Sure	0	0.0%
Total Responding	33	100.0%
No Response	0	

E.2.6 SERVICE RATINGS SURVEY RESULTS – FIXED-ROUTE SERVICE

Figure E-22 and **Table E-6** summarize the responses to the survey questions that were developed to obtain the view of the current riders as to quality of service currently being offered by STAR Transit. The service factors presented for rating were as follows:

- Cleanliness of buses and bus stop areas
- Bus on-time performance
- Hours of bus service
- Cost of bus fare
- Sense of security on the buses and at stops
- Availability of Schedules and Route Information
- Courtesy/friendliness of bus drivers
- Overall service rating
- Areas that are served by bus routes
- Frequency of bus service

For most of the ten evaluation measurements, those that responded to the survey provided combined ratings of "Very Good" or "Good" in the range of approximately 80 percent or higher for almost every measurement. However, the service factors of "Hours of Bus Service" and "Bus On-Time Performance" received only 66 and 76 percent, respectively, of the respondents rating the measure as "Very Good" or "Good".

These results represent a positive opinion of the system by the passengers of STAR Transit. It also indicates that the users are satisfied with the overall services STAR Transit provides.
Note that no information regarding potential improvements to the STAR Transit system were gathered via the on-board survey. The transit system staff inadvertently deleted this last group of questions from the survey questionnaire form in order to allow for the form to be copied on standard letter size paper. However, the information obtained from the passenger rating of the existing services combined with input from the transit system manager and examination of the current operations by consultant team members have been able to identify several potential service improvements.

Figure E-22. Survey Results: Service Ratings (Fixed-Route Service)

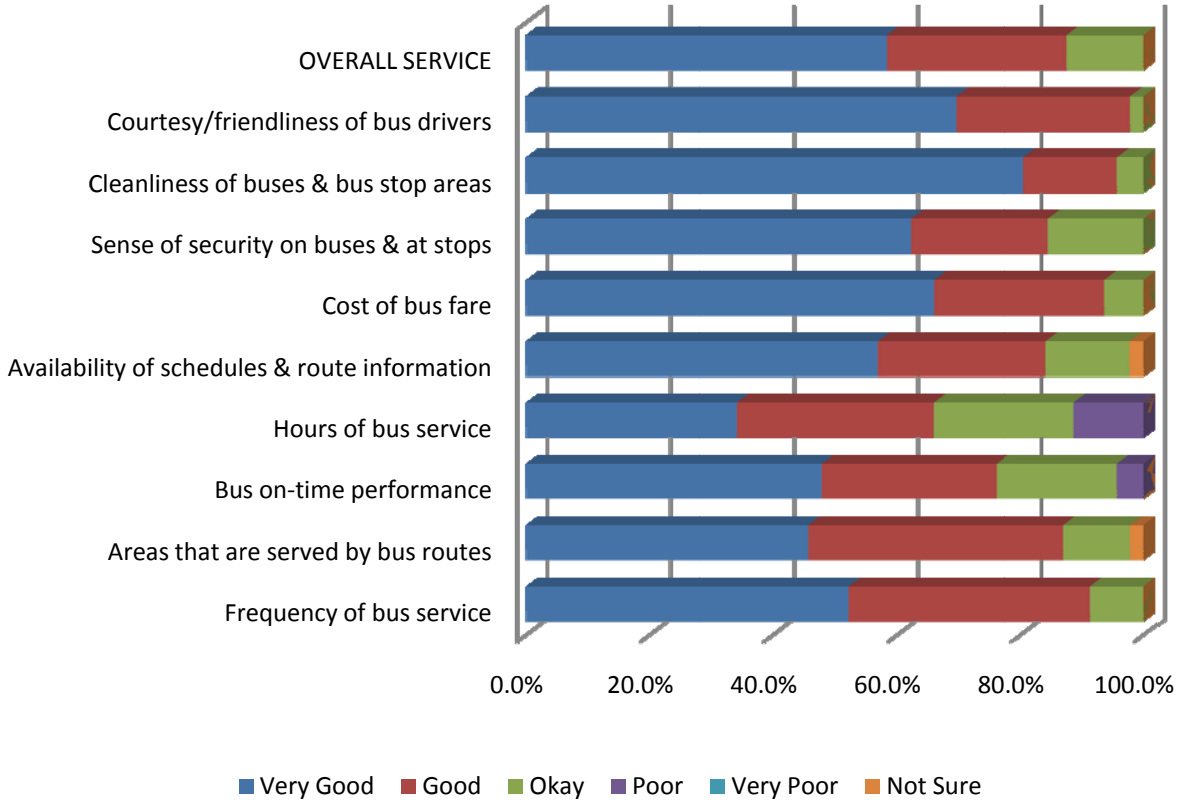


Table E-6: STAR Transit Service Rating (Fixed-Route Responses)

Frequency of bus service	Number	Percent
Very Good	24	52.2%
Good	18	39.1%
Okay	4	8.7%
Poor	0	0.0%
Very Poor	0	0.0%
Not Sure	0	0.0%
Total Responding	46	100.0%
No Response	4	

Cost of bus fare	Number	Percent
Very Good	31	66.0%
Good	13	27.7%
Okay	3	6.4%
Poor	0	0.0%
Very Poor	0	0.0%
Not Sure	0	0.0%
Total Responding	47	100.0%
No Response	3	

Areas that are served by bus routes	Number	Percent
Very Good	21	45.7%
Good	19	41.3%
Okay	5	10.9%
Poor	0	0.0%
Very Poor	0	0.0%
Not Sure	1	2.2%
Total Responding	46	100.0%
No Response	4	

Sense of security on buses & at stops	Number	Percent
Very Good	28	62.2%
Good	10	22.2%
Okay	7	15.6%
Poor	0	0.0%
Very Poor	0	0.0%
Not Sure	0	0.0%
Total Responding	45	100.0%
No Response	5	

Bus on-time performance	Number	Percent
Very Good	22	47.8%
Good	13	28.3%
Okay	9	19.6%
Poor	2	4.3%
Very Poor	0	0.0%
Not Sure	0	0.0%
Total Responding	46	100.0%
No Response	4	

Cleanliness of buses & bus stop areas	Number	Percent
Very Good	37	80.4%
Good	7	15.2%
Okay	2	4.3%
Poor	0	0.0%
Very Poor	0	0.0%
Not Sure	0	0.0%
Total Responding	46	100.0%
No Response	4	

Hours of bus service	Number	Percent
Very Good	15	34.1%
Good	14	31.8%
Okay	10	22.7%
Poor	5	11.4%
Very Poor	0	0.0%
Not Sure	0	0.0%
Total Responding	44	100.0%
No Response	6	

Courtesy/friendliness of bus drivers	Number	Percent
Very Good	32	69.6%
Good	13	28.3%
Okay	1	2.2%
Poor	0	0.0%
Very Poor	0	0.0%
Not Sure	0	0.0%
Total Responding	46	100.0%
No Response	4	

Table E-6 Continued

Availability of schedules & route information	Number	Percent		**OVERALL SERVICE**	Number	Percent
Very Good	25	56.8%		Very Good	28	58.3%
Good	12	27.3%		Good	14	29.2%
Okay	6	13.6%		Okay	6	12.5%
Poor	0	0.0%		Poor	0	0.0%
Very Poor	0	0.0%		Very Poor	0	0.0%
Not Sure	1	2.3%		Not Sure	0	0.0%
Total Responding	44	100.0%		**Total Responding**	48	100.0%
No Response	6			No Response	2	

APPENDIX F.
STAR TRANSIT PROJECT STAKEHOLDER MEETING

STAR Transit Interview
Meeting Notes
December 18, 2008

An interview with STAR Transit was held on December 18, 2008 at the STAR Transit office in Parksley, VA. The meeting began at approximately 9:00 AM.

Attendees

Attendee	Organization
Mary Ardolino	**STAR Transit**
Elaine Meil	**A-NPDC**
Lewis Grimm	**PBS&J**
Kevin Chiang	**PBS&J**
Jim Boyer	**PBS&J**

Meeting Notes

Below are the notes for the meeting.

Following self introductions, Lewis Grimm began the meeting with a brief overview of the TDP project purpose and a review of the general project scope of work that will be followed in preparing the TDP for STAR Transit and the other nine transit systems around the state. He then asked Ms. Mary Ardolino to provide the group with an overview of the system and its operations.

Mary Ardolino (STAR Transit Manager) gave an introduction of the background of STAR Transit noting the following:

- The system started their operations in October 1996. She was the first employee hired as a Driver for the STAR Transit system. Over the subsequent years, she has advanced to the positions of Senior Driver, Interim Manager, and eight years ago, was appointed the system manager.

- Currently, STAR Transit operatess five routes: Four fixed route services and one demand – response service. The system recently operated two demand-responsive routes, but one ("Ruby Express") had to be dropped due to the very high fuel costs encountered earlier this year.

- They have a total of 13 employees now, 7 full-time and 6 part-time. These include 5 full-time drivers; 2 full-time administrative staff; 3 substitute drivers and 3 other part-time staff. Among them, 6 are females and 7 are males. The staff is responsible for administrative and operational functions with vehicle maintenance being contracted out to Shore Tire. Ms. Ardolino expressed a desire to hire a good mechanic but indicated that funding constraints would likely limit this to a part-time position.

- The variability of the general regional economy, high levels of poverty, low reading levels and high school dropout rates have all contributed to a higher than desired turnover rate among the system's staff. The average wage rate for the STAR Transit employees with a commercial driver's license required of all bus drivers is only $9.00 per hour. The full time employees work 32 hours per week.

- The view was expressed that the system board of directors did not tend to be very involved with the operations of the system; very few were thought to have ever ridden one of the buses in service. There are six board members, three appointed by the Board of Supervisors from each of the two counties which comprise the defined service area of the system. The designated DRPT staff representative was noted as seldom attending the board meetings. The formerly monthly board meetings have been reduced to every other month as a cost and time savings measure.

- It was noted that Darrell Feasel of DRPT had been very supportive of the system since it was originally established and that Mark Rickards, formerly with DRPT and now the General Manager of the WAT system, had also been very helpful to the system.

- The diesel fuel costs for the buses have accounted for a big partial of the system operating costs and have changed dramatically over the past year. For example, the average fuel cost (per month) increased from $2,000 to $4,000 within one year (from 2007 to 2008). This made it very difficult for the system manager to prepare a reasonable annual budget.

- STAR Transit fare:
    - Fixed route: $1.50 for regular rate; $1.00 for reduced rate (Disabled persons and Seniors)
    - Demand-response service: $3.00 for regular rate; $2.00 for reduced rate (Disabled persons and Seniors)
    - Drivers record the type of fare paid by each passenger as they board the vehicle on daily fare sheets.

- Average ridership is estimated to be approximately 150 riders for all routes per day. Occasionally, daily ridership will exceed 200 passengers per day. Typical average annual ridership is approximately 35,000. It is estimated that approximately 1% of the total resident population of the two counties in the service area are regular riders of the system.

- The average farebox revenues are approximately $50,000 per year for STAR Transit.

- The ridership for STAR Transit has been relatively stable at approximately 3,500 to 4,000 passengers per month.

- It is estimated that approximately 30% to 35% of the total riders were disabled or elders. It is estimated that it takes an average of approximately 10 minutes for each wheelchair service passenger to enter or exit the vehicle and have the driver properly attach and adjust the chair restraint straps.

- They had 5 vehicles running the services, 2 spare vehicles and 2 administrative vehicles (One van and one pick-up truck). Each of the buses in the current fleet is a 15-passenger, two-axle, body on chassis type vehicle. All buses are wheelchair lift equipped, have front mounted bike racks, and carry one child car seat on each vehicle.

- There was a $500 safety bonus each year for the drivers who have a "clear" record (No accidents, no mistakes)

- The 2010 budget estimate for STAR Transit is due on January 5th, 2009.

- The annual budget for STAR Transit was $564,000. $33,000 was from Accomack County and $26,000 was from Northampton County. Total system operating mileage (fixed-route and demand-responsive) is approximately 3456,000 miles per year.

- There was a high demand for transit services for disabled people and seniors in the transit service area Reflective of the high poverty levels (many households earning less than $10,000 per year) and the resulting high percentage of the population on public assistance.

- There were roughly 100 calls per day for STAR Transit. Most of them are asking the information of the transit. Mary Ardolino insisted that every call should be answered by the transit system staff.

During a discussion of how best to conduct an on-board ridership survey, Mary Ardolino mentioned that their shuttle bus drivers probably can do the survey in the vehicles to record the number of the passengers get in and get out the shuttles at each stops. This could also indicate the time of arrival at each stop and the type of fare paid by each boarding passenger.

They recently traded one vehicle for a new one because their driver accidently put gas in the diesel engine.

Based on FTA regulations, STAR Transit should not be providing route deviation services for people living more than ¾ miles away from the regular route. However, most of their

residences and some of the destinations are more than ¾ miles from the routes but within 1 ½ mile of the route. STAR Transit had asked DRPT to allow them to change the allowable route deviation service area to 1.5 miles beyond the fixed route.

Based on the FTA 5311 regulations, the maximum number of days that STAR Transit can provide their services without wheelchair services was three days.

Mary Ardolino mentioned they have had some bad experiences when they provided the transit services. For example a driver was attacked with a cane by a passenger. While rare, such incidents happen about once a year.

A high percentage of the people in the area where STAR Transit is providing services were poor and have little income (less than $10,000 annually). A lot of people have dropped out of the local public schools. The population was not growing in the study area.

Mary Ardolino mentioned she has insisted that STAR Transit not allow the riders on the buses if they do not pay the fare. Where this situation has arisen, drivers are directed to contact the office by radio to seek management approval of a waiver for the passenger on a case by case situation.

Users of the demand-response service typically need to call ahead and wait for one to two hours to get the service. No advance reservations are accepted at this time. If a potential passenger calls for either demand responsive or route-deviation service once the vehicle has departed the area the passenger must wait until the next scheduled trip is being made.

STAR Transit has established partnerships with a number of other public and private organizations in the area (approximately 13 agencies). These agencies included the local community college, public service organizations and private companies. The agencies purchased the passes for their clients or staff. Their clients or staff then can show these passes to the shuttle drivers to get the transit services.

No formal ridership surveys have been done in the past for STAR Transit. As a result no on/off or on-board origin-destination data current exists. However, fare sheets are maintained each day on each route so that daily ridership and fare paid by type information is available and can be supplied to the consultant team.

The new 4,000 square foot transit operations and minor maintenance facility under construction at Onley in Accomack County has a total estimated construction cost of $1.0 million. Of this total, a 10% local government match was required for the federal and state funds. Each of the two counties (Accomack and Northampton) provided $50,000 for the matching funds. STAR Transit will be moving to this new facility at the beginning of 2009.

At this time there are not any officially adopted system goals, objectives or service standards. However, there are three basic operating policies that Mary Ardolino has implemented in STAR Transit.

- Vehicle operating manual for drivers
- Cellular phone policy – Drivers can't use cellular telephones when they are on duty
- An over the counter (OTC) prescription drug policy – Does the driver take any medicines? If yes, why kind of medicine he or she is taking? This requires that an annual update of the information be provided.

There were no GPS devices in STAR Transit shuttles now. It was their goal to get these devices in the future. All buses currently have on-board two-way radios and are in regular contact with the office, particularly with respect to the transmittal to the drivers of demand-responsive or route deviation pick-up requests.

Mary Ardolino mentioned she told their drivers that the vehicle speed can't exceed 55 mph in operation for the service. The drivers are also directed to stop at each published stop and wait for 30 seconds.

Following this system overview, Ms. Ardolino related the history of the system over the past several years:

- Orange Route started operating in the Chincoteague area in February 1999 and stopped operating in July 2000. It failed because of the lack of ridership.

- Bay Route – Chesapeake Bay Connector: This link between the Eastern Shore counties and the Norfolk/Virginia Beach area ran for about two years in the 1998-2000 period but was terminated due to high cost and limited ridership. Most of the riders were traveling to and from shopping opportunities rather the route's stated purpose of providing a link to employment sites on the south side of Hampton Roads.

- Silver Express Route was the door-to-door service operating from MD line to north Accomack County. It operated for only 6 months and was shut down roughly 5 years ago because the ridership was too low (less than 10 people per day). This route connected with service in Pocomoke, MD that allowed transit connections to Salisbury, Ocean City, and (via intercity bus) to Annapolis.

- Ruby Express Route was the door-to-door service and operated less than one year. When it started operating it brought more than 200 riders in one month. It was a successful route before it was shut down because of the dramatic increases in fuel prices that took place earlier in 2008.

An average of $20,000 to $30,000 in Section 5311 operating assistance grant funds has been returned back to DRPT per year since Mary Ardolino became the manager of STAR Transit. However, it was the money in the budget not the real cash.

Ms. Ardolino noted that the new annual budget request is due on February 1, 2009 and that the budget request cannot be adjusted upwards during the year to reflect changes in actual operating costs such as fuel costs. She also noted a high degree of uncertainty at this time over the county budgets in each of the two counties given the state of the local economy. Local funding to match federal and state grants come from a variety of sources, primarily local governments, the sale of on-vehicle advertising, and agency contributions.

The revenue from the local college was $10,000 to $12,000 per year. Except the Green Route, the students can show their ID to get on the shuttle and later STAR Transit will charge the school for the fares. The local college used to contribute extra $6,000 to have the partnership with STAR Transit but it stopped now.

The closing of the local K-Mart store had a big impact in ridership. The ridership dropped a very large amount when this took place. Long term ridership data is available to document the effect.

When the gas price increased, it didn't increase the ridership.

Mary Ardolino asked: How much economical benefit did STAR Transit bring to the service area? She noted that the $50,000 annual fare box revenue was about 10% of the annual system operating cost of about $550,000 per year and asked how this compared to other similar systems.

Mary Ardolino would like to know how other transit agencies handled monthly pavements and bills. She mentioned that STAR Transit needed a reserve account for cash management. She needed $20,000 credit line for the $500k annual budget and had recently obtained approval from the board to set up such an account.

In response to a question Mary Ardolino mentioned that currently STAR Transit didn't have a ridesharing plan despite the formal name of the agency being the Shore Transit and Rideshare Agency.

STAR Transit expected that the new Wal-Mart soon to be opened in the transit service area near Onley will have a positive impact in ridership of the STAR Transit. The passengers of grocery shoppers often affected the shuttle schedule because they carried too much bags and can't get in the shuttle in time.

Taxi service was not available in the study area of STAR Transit system. The taxi service was available from Hampton Road and not poplar in the study area. There are some informal, unlicensed taxis in the area.

Mary Ardolino mentioned that the bus stop signs installed at each of the designated stops/time points on the published schedules were constantly being stolen. The cost for a bus shelter was approximately $5,000. Mary Ardolino suggested that the local stores and companies can contribute the cost to build the shelters and put advertisements for their business at the shelters. She has obtained a grant for two new passenger shelters and plans to install one of these at the Exmore Town office complex. She noted that the "Pony Express" town trolley service on Chincoteague Island has also installed a few passenger shelters at a similar cost. This is another 5311 grant program even though the service only operates during the peak summer tourist season with its three trolley style vehicles.

Perdue Chicken employees had some transit service demands. The company has a strict policy for their working schedule. If any employees arrive late for their job, they will be let go. Therefore, the transit schedule time and accuracy will be very critical for them to use the transit services. Given the trip time variation associated with the routes this management constraint is seen as a real impediment to increased ridership by persons without regular access to a car.

Language was one of the problems for STAR Transit operation. Some of the riders (primarily Hispanics) can't speak English and drivers didn't know their destinations. There is also the perception of some Hispanics being hesitant to use public transportation services to travel to and from government office sites. This growing percentage of the population is viewed as a potential untapped market.

STAR Transit didn't have the record of passengers' race. They roughly estimated that Spanish-speaking people using the transit system was about 5-10% of total passengers. It was also estimated that about 90% of the total ridership was African-American.

Traffic, weather and passenger loading and unloading times, especially by the disabled riders, were the three major factors cited as affecting the transit operation and their schedule.

Elaine Meil (A-NPDC staff) mentioned that a GPS study of STAR Transit was conducted in 2006 to collect the ridership and passenger information. The primary purpose of this study was to locate the bus stops and verify the routes. A hard copy of this study was provided to the consultant team

Elaine Meil (A-NPDC staff) mentioned that providing weekend service on Saturdays and/or Sundays by STAR Transit was not viewed as being practical at this time. They would rather have the earlier and later services during the weekdays.

Elaine Meil (A-NPDC staff) mentioned that the Hampton Roads transit system has indicated an interest to have their service to connect with the STAR Transit service at some point close to the Chesapeake Bay Bridge Tunnel. This was viewed as a viable potential service expansion if sufficient operating support can be identified.

Advertisements on the shuttles were pulled out by the local companies because of the bad economics.

The annual review of STAR Transit by DRPT staff was done in June 2008.

In closing, both Ms. Ardolino and Ms. Meil indicated that they would provide paper and electronic copies of the various reports discussed during the meeting to the members of the consultant team shortly after the beginning of 2009.

On that note, the meeting was concluded at approximately 3:30 PM.